SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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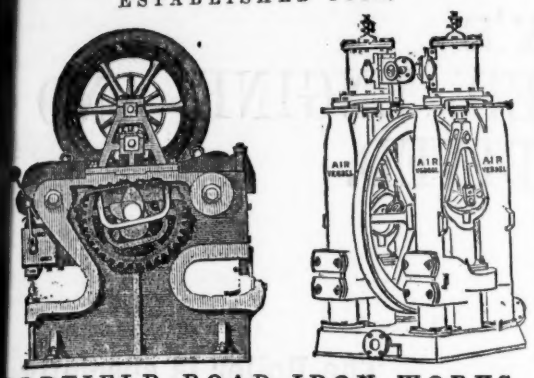

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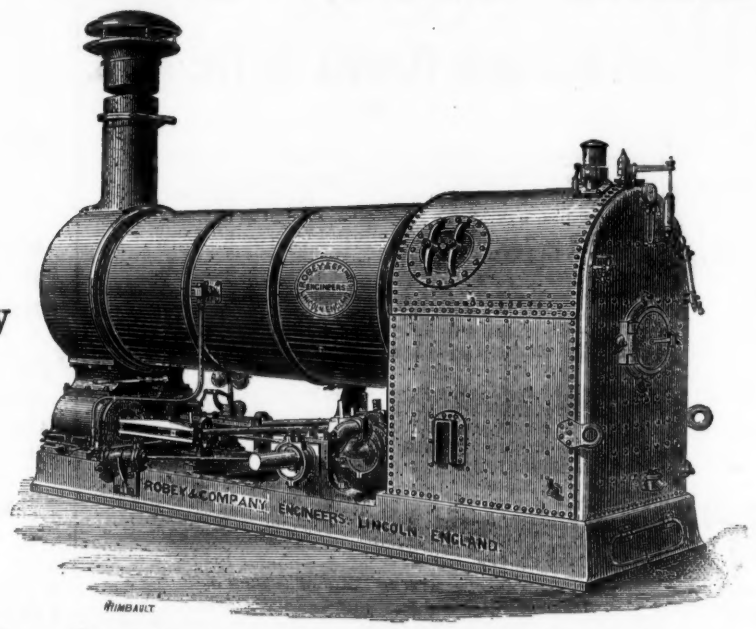

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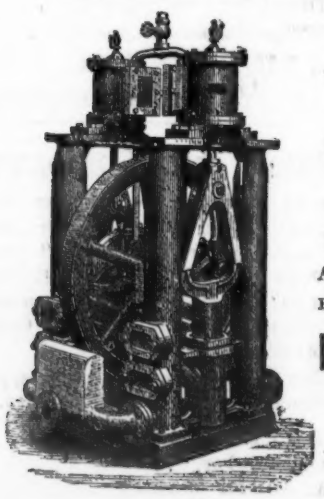

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Original Correspondence.

THE IRON INDUSTRIES OF DERBYSHIRE.

By RICHARD MEADE, Assistant Keeper of Mining Records, Museum of Practical Geology.

The southern extension of the Great Midland Coal Field, in the counties of Derby and Nottingham, like the northern division, in the West Riding of Yorkshire, considered in a previous notice, is equally rich in its resources of coal and ironstone, but while the beds of coal throughout the area present more or less regularity in regard to thickness and production, some of the measures of ironstone, on the other hand, exhibit much irregularity in thickness, frequently thinning out within comparatively short distances. In the northern division of the Great Midland Coal Field, in the West Riding of Yorkshire, the two principal seams of coal at the top and bottom of the coal measures are known as the "Barnsley Thick" and the "Silkstone," between which are distributed, interstratified with less important seams, numerous bands or measures of ironstone. These principal seams of coal, in the Wentworth district, near Rotherham, have a thickness, the former varying from 6 ft. to 9 ft. 6 in., while the latter is 4 ft. In Derbyshire these same "Barnsley" and "Silkstone" seams are identified respectively as the "Top Hard" and "Black Shale," or "Clod Coal;" the first-named seam, at Staveley, near Chesterfield, being 6 ft. and the latter 5 ft. thick. Between these seams of coal, as in Yorkshire, some of the more important measures of ironstone occur; these measures in Derbyshire are known as "rakes," in which the ironstone is distributed in the form of nodules, frequently lying in such thickness as only to be wrought to advantage by open workings, or as they are locally called, "bell pits;" where such a mode of working is adopted a considerable production of ironstone is secured. The following are the principal ironstone bands, or measures, in descending order between the "Top Hard" and "Black Shale" seams of coal, which are separated by a sectional thickness of 1600 ft. of measures. The uppermost of these ironstone measures is known as the "Buff" or "Cement Rake," in the Alfreton district, and yields 1800 tons per acre; the "Pinder Park Rake," at Staveley, near Chesterfield, giving 2000 tons per acre; while the "Brown Rake," at Butterley, in the Alfreton district, yields 2500 tons per acre. The "Black Rake," in the same district, consisting of five courses, produces 2000 tons per acre. Next in order comes the "Dog-tooth Rake," at Staveley, known as "Wallis's Rake" at Butterley, yielding 2000 tons per acre; and the "Nodule Rake," at Morley Park, 1600 tons per acre, which, south of Clay Cross, is known as the "Dog-tooth Rake." The most productive measure of the district here occurs—the "Black Shale Rake," at Chesterfield, divided into top and bottom measures, and yielding from 4000 to 7000 tons of ironstone per acre; while the "Striped Rake," of Kirk Hallam, yields a produce of 2500 tons per acre. Below the "Black Shale" coal, which here occurs, and before the "Millstone Grit" is reached, there exits a series of beds known as the "Gannister series," having a thickness of nearly 1000 ft.; in the upper part of this series, and before the "Kilburn" seam of coal (a seam of 5 ft. thick) is reached, are some bands of ironstone, principally worked in the districts of Alfreton and Morley Park; they are known as the "Green Close Rake" and the "Holly Close Rake," producing from 1000 to 1200 tons per acre; the "Black" or "Ketland Rake," 3000 tons; and the "Yew Tree Rake," 1000 tons. The "Kilburn" coal here occurs, and below it the "Honeycroft" and "Civilly" Rakes, at Stanton, giving 6000 and 4000 tons per acre of ironstone respectively; while the "Dale Moor Rake" (below the Furnace coal, a seam of 2 ft. 3 in. thick) yields 3000 tons per acre. Some of the foregoing facts are derived from the very valuable report of the late Mr. Samuel Blackwell, on the collection of iron ores which he exhibited in 1851 in the Great Exhibition, and subsequently presented to the Museum of Practical Geology, Jermyn-street, where they are now exhibited.

IRONSTONE.—The following shows approximately the production of the ironstone measures of Derbyshire in the years given, and the slight variation in the output is due to the fact that the bulk of production is employed in the iron furnaces of the county, the exported quantities being inconsiderable:—

1860	Tons 387,500	1869	Tons 352,000
1863	350,000	1872	307,183
1866	329,500	1873	365,127

Of the production of the year 1873 the following shows the quantities obtained in the various districts named, as far as returns have been received by the Mining Record Office; the average value of the ore being estimated at about 12s. per ton:—

Districts.	Iron ore.	Value.
Alfreton	Tons 14,854	£ 8,912
Butterley	71,165	42,699
Morley	13,353	8,012
Renishaw	10,500	6,300
Staveley	173,664	104,018
Sheepbridge	12,446	8,668
Wingerworth	14,771	8,863
West Hallam	18,917	10,250
Sundry pits	35,457	21,274
Total	Tons 365,127	£218,996

These argillaceous ores vary in the quantity of metallic iron they contain, and their characters are well shown by the analyses recorded in the "Iron Ores of Great Britain," Part I. These analyses were made by Mr. John Spiller, in Dr. Percy's laboratory in the Royal School of Mines; it will be convenient to give side by side, for comparison, the amount of carbonic acid, protoxide of iron, and the equivalent of metallic iron contained in each sample, as follows:—

Ironstone measures.	Situated.	Carbonic acid.	Protoxide of iron.	Metallic iron.
Swallow Wood Rake	Stanton	28·64	33·72	26·79
Honeycroft Rake	Ditto	29·72	40·01	32·73
Civilly Rake	Ditto	24·83	33·31	27·79
Dale Moor Rake	Ditto	28·63	39·55	33·20
Brown Rake	Butterley	29·92	37·99	30·60
Black Rake	Ditto	25·63	33·56	27·61
Brown Rake	Ditto	28·74	35·74	29·32
Dog Tooth Rake	Staveley	30·14	38·97	31·34
Ditto	Ditto	27·61	28·27	22·98

Taking an average of the amount of metallic iron contained in the foregoing analyses, 29·15 will fairly represent the percentage in the ironstone of Derbyshire. As regards the production of ironstone in the year 1873, that of Derbyshire bears a proportion of 2½ per cent. to the aggregate output of Great Britain, which amounted in the same year to 15,577,499 tons.

PIG-IRON MANUFACTURE.—The smelting of the ores of iron in Derbyshire with coke dates from about the year 1780; previously numerous small furnaces and bloomeries existed in various districts where cast and bar iron was made with charcoal, but they gradually disappeared, and in the year 1788 the last ceased working; the blast at these works was secured by means of a water-wheel. With the use of coal or coke a great change took place in the form and construction of the blast-furnace; hitherto, when charcoal was employed, they were square in form, subsequently those erected were circular, and of increased height and capacity. With these changes came most opportunely the improvement in the steam-engine, by Mr. James Watt, which our ironmasters were not slow in adopting, and thus considerably and in a very short period increased the productive power of their establishments. The first furnace erected in Derbyshire in which coke was exclusively employed in the make of pig-iron was at Morley Park, in the year 1780, where also, some years later, the steam-engine in working the blast was successfully introduced. About the same year, 1780, were established two ironworks at Chesterfield, and another at Wingerworth, succeeded in 1786 by the Staveley Works, at Chesterfield, and in 1788 by the Dale Abbey Works, which a few years later were dismantled and pulled down. In the year 1792 the Butterley Works, at Alfreton, and the Renishaw Works, at Eckington, were founded, and later the Alfreton Works, of Messrs. Oakes and Co., which were at one time known as the "Somercotes" Works; it was at these works that Mr. David Mushet introduced his system of making coke on a large scale for the blast-furnace, called the "close way," as distinguished from the old method in use at the beginning of this century of making a large heap of coals, which being set fire to were subsequently extinguished by a stream of water. The other works established at the close of the last century were those at Hasland and Duckmanton, but these have long since been abandoned and dismantled.

The make of charcoal pig-iron in Derbyshire in the year 1788, of the only remaining furnace at Wingerworth, is stated to have been 300 tons; the production of England and Wales the same year of 24 furnaces being recorded as 13,100 tons, while at the same period the production of coke pig-iron of 7 furnaces in Derbyshire is stated to have been 4200 tons, the total quantity of coke pig-iron made in Great Britain the same year being 48,200 tons. The following statement shows the production of charcoal and coke pig-iron in 1788:—

Districts.	Charcoal Pig-Iron. Furnaces.	Tons.	Coke Pig-Iron. Furnaces.	Tons.
Brecknockshire	—	—	2	1,600
Caermarthenshire	1	400	—	—
Cheshire	—	—	1	600
Cumberland	1	300	1	700
Derbyshire	1	300	7	4,200
Glamorganshire	3	1,800	6	6,600
Gloucestershire	4	2,600	—	—
Lancashire	3	2,100	—	—
Merionethshire	1	400	—	—
Monmouthshire	3	2,100	—	—
Shropshire	3	1,800	21	23,100
South Staffordshire	—	—	3	2,400
North Staffordshire	—	—	6	4,500
Sussex	2	300	—	—
Westmoreland	1	400	—	—
Yorkshire	1	600	6	4,500
Total	24	13,100	53	48,200

These returns give the aggregate production of pig-iron in Great Britain in the year 1788 as 61,300 tons.

Advancing to the beginning of the present century there is found in "Farey's Survey of Derbyshire" a very complete statement of the works in operation in the year 1806, with their individual production of coke pig-iron, which was as follows:—

Works.	Furnaces. Built.	In blast.	Make of pig-iron. Tons.
Alfreton	1	1	1,450
Butterley	2	2	1,766
Chesterfield	3	2	1,700
ditto	2	1	700
Dale Abbey	1	0	—
Duckmanton	2	1	900
Hasland	1	1	723
Morley Park	1	1	700
Renishaw	2	1	975
Staveley	1	1	596
Wingerworth	2	1	819
Total	18	12	10,329

In the same year (1806) the make of pig-iron in Great Britain of 162 furnaces using coke amounted to 250,406 tons, while of the charcoal furnaces, of which 11 still existed in the kingdom, their make is stated to have been 7800 tons. Thus we have in 1806 a total production of 258,206 tons of pig-iron, which when compared with the production of 1788 shows an increase fourfold.

The Butterley Company about the year 1811 erected two blast-furnaces at Codnor Park, to which a third was added in the year 1825. This company has long been celebrated for its massive and magnificent castings, examples of which may be seen in the iron bridge over the River Thames at Vauxhall, the colonnade in front of the Opera House in the Haymarket, and in numerous bridges and roofs in the West India Docks, while north of the Tweed the bridge at Leith Harbour and others, and lock-gates on the Caledonian Canal, may be referred to. The next account of the manufacture of pig-iron in Derbyshire to which attention is directed is that prepared by Mr. F. Finch, formerly Member for Walsall, who ascertained that in the year 1823 the production of 15 furnaces amounted to 14,038 tons, and in 1830, of 18 furnaces, to 17,999 tons, the details being as follows:—

Works.	Furnaces.	1823—Pig-iron.	Furnaces.	1830—Pig-iron.
Alfreton	2	2,890	2	2,950
Brampton	2	1,807	2	1,245
Butterley	3	2,639	3	3,981
Calow	1	—	1	123
Codnor Park	2	2,096	3	2,455
Duckmanton	1	1,091	1	1,446
Morley Park	1	544	2	1,428
Renishaw	2	2,120	2	2,810
Staveley	1	1,051	2	1,561
Total	15	14,038	18	17,999

In Great Britain in the same years the make of pig-iron was 454,866 tons and 678,417 tons respectively, showing an increase in seven years in the total production of nearly 50 per cent. Mr. David Mushet gives the production of pig-iron in 1839 in Great Britain as 1,248,781 tons, the make of 378 furnaces; the 14 furnaces then in operation in Derbyshire contributing 34,372 tons of that quantity.

The late Mr. Samuel Blackwell, in the year 1851, entered very fully into the question of the iron-making resources of the United Kingdom, and furnished the following list of works in Derbyshire, and the number of furnaces built and in operation at that period:—

Works.	Furnaces. Built.	In blast.	Works.	Furnaces. Built.	In blast.
Alfreton	3	2	Newbold	1	1
Brimington Moor	1	1	Renishaw	2	1
Butterley	3	2	Stanton	3	2
Codnor Park	2	2	Staveley	4	2
Clay Cross	2	1	Unstone	1	1
Duckmanton	1	0	West Hallam	2	1
Morley Park	2	2	Wingerworth	2	1

Thus we find from this table 29 furnaces erected, of which 19 were producing pig-iron amounting to 60,000 tons, or an average make per furnace of 3158 tons. A few years later the production of pig-iron was ascertained by the Mining Record Office, and has since been regularly published in the "Mineral Statistics of the United Kingdom" by Mr. Robert Hunt, F.R.S., the Keeper of Mining Records. For general reference and comparison it will be convenient to give for the following years, side by side with Derbyshire, the production of the West Riding of Yorkshire (which includes the northern division of the Great Midland Coal Field of Yorkshire, Derbyshire, and Nottinghamshire), together with the total production of Great Britain in each of the same years:—

	Derbyshire. Furnaces. Built.	In blast.	Pig-iron. Tons.	West Riding of Yorkshire. Pig-iron. Tons.	Great Britain. Pig-iron. Tons.
1855	33	24	116,550	90,840	3,218,154
1860	37	23	125,850	98,100	3,826,752
1865	41	34	189,364	123,233	4,825,254
1870	43	30	179,772	105,765	5,963,515
1871	46	38	270,485	114,549	6,627,179
1872	46	38	283,375	148,636	6,741,929
1873	47	39	296,468	151,511	6,566,451

Taking the production of Derbyshire for the year 1873 the average yield of pig-iron gives 7600 tons per furnace, which shows favourably with the year 1851, when, as previously stated, the average was 3158 tons; while in the same year Derbyshire contributed 4½ per cent. and the West Riding of Yorkshire nearly 2½ per cent. of the total production of Great Britain. The falling off in the make of pig-iron in 1873 as compared with 1872 is principally in the furnaces of Wales and Scotland. To render this part of the enquiry as complete as possible, the following list of works in Derbyshire in 1873, with the number of furnaces built and in blast, brings the information up to the latest period:—

Works.	Situated.	Owners.	Furnaces. Built.	In blast.
Alfreton	Alfreton	James Oakes and Company	3	3*
Butterley Park, Codnor Park	Ditto	The Butterley Company	7	3
Clay Cross	Chesterfield	Clay Cross Company	3	3
Derby	Derby	W. H. and G. Dawes	4	3
Morley Park	Belper	Henry Cathrow Disney	2	2
Newbold	Chesterfield	Newbold Iron Company	1	1
Renishaw	Eckington	F. R. Appleby and Company	4	3
Sheepbridge	Chesterfield	Sheepbridge Coal and Iron Co. (L.)	5	5†
Stanton	Nottingham	Stanton Ironworks Company	5	5
Staveley	Chesterfield	Staveley Coal and Iron Co. (L.)	8‡	7
West Hallam	Ilkeston	West Hallam Coal and Iron Co.	2	1
Wingerworth	Chesterfield	Wingerworth Iron Company (L.)	3	3
Total of Derbyshire			47	39

* Two furnaces in blast for five months, and three furnaces for seven months.
† Five furnaces for ten months, and four for two months.
‡ Including one building.

IRON ORE USED IN MAKING PIG-IRON.—The bulk of production of the clay ironstone measures of Derbyshire are, as previously stated, smelted in the furnaces in the county. In the years 1872 and 1873 the total quantities of ores of all kinds used in the production of pig-iron in Derbyshire amounted to 745,560 and 775,000 tons respectively, and derived, as far as can be ascertained, from the following districts:—

Districts.	1872—Tons.	1873—Tons.
Derbyshire	417,560	420,000
Northamptonshire	290,500	308,700
Lincolnshire	1,500	2,500
Other places	36,000	43,800
Total	745,560	775,000

In the last-named quantities of ores from other places is probably included ore received from Lancashire and Staffordshire.

The Derbyshire ironstone (raw) employed alone would require an average of 54 cwts. to each ton of pig-iron made, while with the ores brought into the county the quantity is reduced to 52 cwts. As previously stated, the ironstone of the county varies in the amount of metallic iron; it contains from 22·98 to 33·70 per cent; the Northamptonshire ore averages 40 per cent., while its highly silicious character renders it valuable for admixture with the ores of argillaceous carbonate of the coal measures, and brings it into good request.

COAL USED IN MAKING PIG-IRON.—A few facts bearing on this question will exhibit in a forcible manner its importance. In the year 1873 the collieries of the United Kingdom, numbering 3527, produced 127,016,747 tons; of this quantity there was consumed in the same year, in the manufacture of 6,566,451 tons of pig-iron, 16,718,532 tons of coal, and a further quantity of 18,061,602 tons of coal consumed in the manufacture of bar, merchant iron, and steel, or a total quantity of coal used in our iron industries alone, amounting to 34,780,134 tons, representing 27 per cent. of the total quantity of coal raised in the United Kingdom.

With these broad facts before us, the importance of the economy of fuel in the manufacture of iron will be more clearly understood, and here it will be convenient to refer generally to the economy secured in our blast-furnaces in recent years. The discovery and application of the hot-blast in the year 1829, by Mr. Neilson, of Glasgow, led the way to economy; previously it is recorded that at the Clyde Ironworks, where the introduction of the hot-blast was successfully carried out, 8 tons of coal converted into coke were required to make each ton of pig-iron, but by heating the air to a temperature of 300° Fahr. before its introduction into the blast-furnace, 5 tons 3½ cwts. of coal converted into coke were sufficient, and the temperature of the blast being increased to 600°, it was found that raw uncoked coal could be used with advantage. Advancing to the year 1840, when Mr. William Jessop, of the Butterley Ironworks, instituted a searching enquiry into this subject, he ascertained that in Great Britain in that year that the quantity of coal consumed in making 1,396,400 tons of pig-iron amounted to 4,877,000 tons of coal, or an average of 3 tons 10 cwts. to each ton of pig-iron made; while in Derbyshire in the same year he ascertained that the furnaces produced 31,000 tons of pig-iron, consuming 129,000 tons of coal, or an average of 4 tons 3 cwts. Again, in the year 1869, as recorded in the pages of the Coal Commission Report, we find the quantity diminished, 3 tons only being required, while in the years 1872 and 1873 it had further receded to 2 tons 11 cwts., or an economy since the year 1840 in Great Britain in each ton of pig-iron made of 19 cwts. of coal. It should be stated that in the year 1840, of the 402 blast-furnaces in operation when Mr. Jessop made his enquiry, 162 were using hot-blast, the remaining 240 cold-blast.

In Derbyshire in 1872 and 1873 there were made 283,375 tons and 296,468 tons of pig-iron, in the manufacture of which there were consumed 821,833 tons and 865,350 tons of coal respectively, giving an average of 58 cwts. of coal to each ton of pig-iron made.

MILLS AND FORGES.—Five works, of which the following is a list, have existed for many years, and have from time to time increased their powers of production as the exigencies of trade required:—

Works.	Owners.	Situated.	Puddling furnaces.	Rolling mills.
Butterley	The Butterley Company	Alfreton	42	11
Railway	Eastwood, Swingler, and Co.	Derby	39	3
Victoria	ditto	ditto		
Whittington	Thomas Firth and Sons	Chesterfield.	18	3
Sheepbridge	Sheepbridge Iron Company	ditto	9*	—
Total			108	17

* Double furnaces, equal to 27 single furnaces.

In each of the years 1872 and 1873 it has been ascertained that the consumption or coal at the above-named works, including all the purposes where coal was employed, did not exceed 130,000 tons.

It may be stated, in conclusion, that while many of our iron making districts during the past year have been more or less affected by various disturbing causes, these industries in Derbyshire have progressed with much steadiness and regularity, pointing to an increase of production.

FACTS CONCERNING THE NOVA SCOTIAN GOLD FIELDS.

Total yield of gold, 1861-1874 inclusive	236,364 ozs.
Total yield from quartz mines	228,509½ ozs.
Total yield from alluvial and concentrations	2,354½ ozs.
Value of total yield, at 4*l.* sterling per oz.	£947,456
Value of yield from quartz mines	914,038
Value of yield from alluvial and cement mines	9,418
Average yield per ton of 2240 lbs., 0·8396 ozs.	16 dts. 19·67 grs.
Average yield per *capita* in the mines daily	7s. 8·432d.
Total daily number of miners, 1862-74	591
Aggregate number of days' labour	2,397,772
Total quantity of quartz crushed	302,305¼ tons
Number of mills (in operation)	17
Aggregate number of stamps	130
Greatest depth attained	520 feet.
Estimated acreage explored under present development	150 feet.
Estimated auriferous territory (square miles)	3000

Halifax, N.S., March 23. ACADIENSIS.

DON PEDRO NORTH DEL REY MINING COMPANY.

SIR,—With reference to the letter of your correspondent, signed "Observer," in last week's Journal, in which he asks for information concerning this property, permit me, in reply, to say that I will endeavour to point out many encouraging features in the future for this great mine. Amongst others, we note that gold to the amount of 30,717*l.* sterling has been sold, and that the expenses were 35,000*l.*, showing a loss of 4350*l.* This at first glance may not appear encouraging, but on investigation will not be found so by any means; the losses have entirely occurred in the *first* six months of the year, the returns for the *last* six months having all resulted in some profits, especially the last two returns—one being for 450*l.*, and the last for 1650*l.*; therefore in the future of this adventure rests its apparently certain prosperity. Many difficulties have been overcome satisfactorily. The chief hopes of large future returns appear to rest in the following—In No. 6 shoot a very strong lode, which has been worked upon, is reported to be improving as it descends, and when it forms a junction with the Canoa shoot satisfactory results may be anticipated. The Canoa lode has fluctuated, but has yielded fair mineral. Again, in No. 8 shoot the supply of ore has been capital; the southern portion, in the lowest part of the mine, has been producing some capital work, and here an especially favourable feature may be noticed—the lode is again widening as it descends, and is pronounced to be the strongest yet discovered in the Macquine portion of the mine; large quantities of fair box-work have been taken out of this lode also. It is in depth, therefore, that the future of Don Pedro must be obtained. The lodes thus increasing in depth indicate the lasting nature of these rich minerals and lodes. The important improvement in treating the ores by the new process of the jigging machines must make a large increase in the returns, reducing the loss from 35 to 20 per cent. The fact of the greater part of the box work coming from No. 8 shoot, where none worth a consideration was previously obtained above the 25 fm. level, affords a strongly favourable contrast. Again, very rich box-work has been obtained from the 30 and 35 fm. levels, and here the rich lode is widening as it descends. If the lodes of any rich gold mine can only be found to be increasing as they descend, there is no uncertainty as to the property becoming a rich adventure, especially when we consider that a mine like Don Pedro, which has already returned 100,000*l.* in profits to the shareholders, and needs only greater depth (now on the point of being obtained) to become greater than ever. The locality (40 miles, say, from St. John del Rey) being in Brazil, one of

the richest spots of South America, speaks for itself, without a reference to what the mine has already done. GOLD QUARTZ.

ROCK DRILLS.

SIR,—Will you kindly publish the following in next week's Journal, for the information of your correspondent "Pedn-an-drea," and others? The Sierra Nevada Company have ordered Burleigh drills of a pattern proper for drilling in the bottom of a shaft. The rock in the present bottom of the main shaft of the company is so soft that no drill is required; as soon as the soft stratum shall have been passed through, however, the drills will be brought to bear upon the bottom. The drills, of course, necessitate the purchase of an air-compressor, as they are driven by means of compressed air. It is probable that we shall hereafter see these drills much more used in shaft work, particularly when hard rock is encountered; and for further information I would tell him the Gold Run Company are now engaged raising an incline shaft by means of a drilling machine, and that wonder treads on the heels of wonder in this age of discovery, and at each new achievement of science we have such strange correspondents as "Pedn-an-drea" in the world, who doubt and question until overwhelming evidence compels them to believe.

RHODONITE.

ROCK-DRILLS IN METALLIFEROUS MINES.

SIR,—As many of your practical correspondents appear to entertain the opinion that machine-drills are only applicable to tunnelling for railway purposes, probably owing to the circumstance that in America every horizontal drivage in a mine is called a tunnel, I have the pleasure to forward you the statement received from the Trustees of the Golden Star Mine, in California, which is not more favourably situated for working than the worst placed Cornish mine I have seen. The drill has given great satisfaction, and, as you will see, has driven a good mine level, 7 ft. by 7 ft., in hard rock at the rate of 1 fathom per day, and at the price of 7*l.* per fm. The first cost of the machinery complete being 900*l.* In England the first cost of the machinery would not amount to one-half the amount mentioned, and the cost of fuel and labour would be lower, so that the cost per fathom would be correspondingly reduced.

April 5. BURLEIGH.

"SIR,—For the information of those engaged in mining, and who may be contemplating the purchase of your machinery, the directors of our company have instructed me to state that the drill, with necessary propelling power and connections, was placed in our mine, and commenced work about Dec. 1 last. The material is hard cement, with cobble intermingled, and working with the ordinary hand drill three shifts would make about 2 ft. per day, costing us from $12 to $15 per foot to run the tunnel, which is 7 ft. by 7 ft. With this machinery we make from 5 to 6 ft. per day at a cost of from $6 to $7 per foot.

During the three months' or more use of the machinery there have been no breakages or repairs worth mentioning. Annexed is a report of the actual working of the drill for the 22 days comprising the month of February. It is deemed proper to add that the cost of the machinery complete, set up and at work, at our mine, has been $4500, and this includes column drills, extra parts, 2000 ft. of 10-in. iron pipe, asphaltum coated, air tanks, air compressor, and 15-horse power boiler—original purchase money, and placing and housing the machinery.—Report of working Burleigh drill machinery for 22 working days of February, 1875, at Golden Star Tunnel, Sierra county, California:—Size of tunnel, 7 by 7; number of 1¼-in. holes drilled, 698; aggregate length of holes, 2443 ft.; average depth of hole, 3 ft. 6 in.; consumption of wood per day, ¾ cord; steam and air pressure, 75 lbs.; lubricants, 43 gallons oil, 10 lbs. tallow, 1 lb. blacklead. No repairs. The entire expenses for the month cannot vary much from $700, or about $6 per foot for the tunnel actually mode. Given under the seal of said company, by order of the trustees.

Sacramento, March 8. LAUREN E. CRANE, Secretary."

THE TREATMENT OF COPPER ORES.

SIR,—Since your anonymous correspondent, "Tough Ingot," is evidently in the habit of indulging in something more than impartial criticism, it is not to enlighten him, but as far as possible to arrest the injury his remarks may cause as regards those who do not possess sufficient chemical knowledge to refute him, that I trust you will allow me to state in reply to his letter:

That the action of lime when employed in the roasting part of our process is that of an oxydising and sulphur-absorbing agent; it is one of the cheapest known materials for this purpose; and as a proof of its efficacy in this respect, I have only to point to the conversion of chrome iron into chromate of lime by roasting with lime, previous to the use of which nitre was to a large extent employed, this innovation causing a revolution in the manufacture of bichromate of potash. As to the reactions which take place in the roasting of metallic sulphurets, either sulphatising or chlorodising, I refer your correspondent and readers to Professor Plattner's "Röst Processe," one of the most classical works on this subject, for their guidance. The adoption of the lime process, which is but one of the various economical methods we have of rendering copper soluble, depends upon the nature of the ores, as it is practically impossible to completely decompose cupreous sulphide by a single roasting without an oxydising agent, and that is, no doubt, the reason why the sulphatising processes to which your correspondent refers did not succeed.

As regards the action of lime in the tanks, he would know perfectly well, had he the slightest knowledge of chemical reactions, that lime when roasted in the presence of sulphur, heat, and air must become converted into an insoluble sulphate, and consequently has not the slightest influence in the vats.

His remarks in reference to the percentage of copper contained in the cupreous sulphide precipitated are passing strange, as he should be aware that sulphuretted hydrogen is the best acknowledged means for separating copper from its solutions, and is employed in all the laboratories of Europe for chemical analysis, producing in the presence of other bodies a much cleaner precipitate than iron. The precipitate falls as Cu.S., containiniug 66 per cent. of copper, and sulphuretted hydrogen would supersede iron in all the metallurgical establishments working upon copper by wet processes, could it be produced cheaply enough. Our process has solved this difficulty, and not only does it give a cleaner precipitate than iron, but a more rapid one, and that at a less cost. Your correspondent can see tons of this precipitate at Foldal, in Norway, where, from its purity, it is used for making sulphate of copper (blue vitriol).

Finally, his remark that the copper solution is saturated with sulphuretted hydrogen, and is no longer capable of holding any more copper, is a total misrepresentation of my words. Were he a chemist he would understand what I have stated, but since it appears otherwise it is, no doubt, hopeless for him to realise the fact that the more copper we have to take out of our solution by sulphuretted hydrogen the stronger will the dissolving power of our liquor become. We do not saturate the solution with sulphuretted hydrogen, but simply use it to precipitate the copper.

The process in which I am interested, but of which I am not the patentee, as stated in error in the Journal, was not devised for the treatment of Spanish cupreous pyrites, but for the treatment of low-class copper ores, which our "chemists, metallurgists," &c., have failed in their attempts to treat, and have left to the tender and watery mercies of the "practical miner." The process referred to by your correspondent, by which the residues of 200,000 tons of Spanish pyrites may be annually treated, has no interest at all for the British mineowner, who cannot possibly treat 1½ and 2 per cent. copper ore at his mine in such a manner. Take away the sulphur and iron, and the Spanish material will not pay expenses for copper on the mine itself by such a process. In what, therefore, can its value consist as regards the treatment of poor copper ores? while as to originality, upon which your correspondent lays so much stress, it has no claims whatever. Chlorodising sulphurets with common salt was practised at the Royal Saxon Metallurgical Establishment, at Frieberg, 20 years and upwards before it was "patented" in this country, and the precipitation of copper by iron was carried on long before that period in the profitable treatment of copper ores of 1½ per cent., at Stadtbergen, iff Westphalia. Messrs. Haupt and Becchi, of Florence, patented the chlorodising of poor copper ores years ago, and signally failed in it, although a good deal of money was spent by an enterprising Prussian consul at Leghorn in attempting to carry it out. The claims to the principles of chlorodising, dissolving out copper by acids, and precipitating by iron, set up in this country are, therefore, simply plagiarisms. The Rhodius family, of Linz, on the Rhine, whose name your correspondent has not cared to mention, I believe deserve the credit of the practical introduction of the chemical treatment of poor copper ores.

It would afford me much pleasure to give you many more facts in reference to copper processes, but I regret that my time does not permit me to contribute to newspaper material. What is wanted to assist our languishing native mining is a process capable of dealing with our poor copper ores at home in a simple and economical manner. This we believe we have arrived at, and our various processes for this purpose are duly protected by a good patent, put together by no novices in chemical lore, chemistry, or law, as "Tough Ingot"—who has sought to condemn it, though it is evident he has never seen the specification—should he or others think fit to act upon his most unwarrantable statement that the process is an open one, will find to their cost.

As individuals we may aid, but are powerless to arrest, the progress of knowledge, and your correspondent will find that there are more undiscovered and unapplied truths in nature and science than are dreamt of in his philosophy. He states that he addresses you in the interests of the public, but the qualifications for such a task must surely be at least experience, justice, and truth. I leave to the consideration of your readers his fitness for the position he has assumed, and the motives which have prompted his injurious and somewhat uncourteous communication, which I think cannot commend itself to the judgment of any right-minded person. With this my notice of anonymous correspondence must cease.

Trinity-square, Great Tower-street, April 8. J. P. WILKES.

EXPLOSIVES USED IN BLASTING.

SIR,—Your correspondent, "A. B.," in his letter on Boring Machinery, in last week's Supplement to the Journal, makes the following assertion—"Dynamite has never been used extensively in Cornwall; it is expensive (nearly 2s. per lb.), whilst gunpowder is only 5d., and it has not been found that the difference in power and effectiveness warrants the purchase of the more expensive." Never was a greater mistake made. The very reverse of each of these statements is true—the fact being that dynamite is very extensively used in Cornwall, as proved before the Parliamentary Committee on Explosives, and that it is found to be much more economical at 2s. per lb., than gunpowder at 5d., and this economy extends to time, labour, and cost. I could quote numerous instances which have come under my observation, but two will suffice:—The St. John del Rey Mining Company used gunpowder in sinking two shafts at their Morro Velho Mine up to the end of 1870, from which time they used dynamite, and with the following results. In November and December, 1870, they used gunpowder only, except for the last two days of December, when they obtained a supply and used dynamite, and they sank during these two months 10 fms. 2 ft. 4 in. only, at a cost of 68*l.* 3s. 6d. per fathom; and in January and February, 1871, when they used dynamite only, the depth sunk was 20 fms. 8 in., and the cost 43*l.* 14s. per fathom only. The result was double the work done, and a saving of 24*l.* 9s. 6d. per fathom, notwithstanding the extra cost of dynamite, which was 145*l.*

The other instance I desire to quote is the railway tunnel under Clifton Downs, where gunpowder, gun-cotton, and dynamite were successively used, with the following results, in the same rock and the same period of time:—

Explosives used.	Distance driven in yards.	Lbs. weight of each explosive used.	No. of bore holes or shots per yard forward.
Gunpowder	8	756	31
Guncotton	14	169	18
Dynamite	15	165	17

From the above it will be seen that the bore-holes required for the gunpowder were nearly double those required for dynamite, and that the cost of each explosive for 15 yards, calculating dynamite and gun-cotton at 2s. per lb., and gunpowder at 5d., being the prices quoted by "A. B." gives the following results:—

	£	s.	d.
The gunpowder required for the 15 yards would be 1417½ lbs., at 5d.	29	10	7
The guncotton, 181 1-14 lbs., at 2s.	18	2	2
Dynamite, 165 lbs., at 2s.	16	10	0

As the drilling was by machinery there was no variation in the bore-holes, and in every respect, including labour, dynamite had a slight advantage over gun-cotton, and a very decided advantage over gunpowder, besides being so much safer to handle and use.

Belmont, Bangor, April 5. ORLANDO WEBB.

COLLIERY WORKING—BALANCED HOISTING ROPES.

SIR,—You had a short note in last week's Journal on the above-named subject. Will you kindly allow me to ask the gentleman who wrote it, through the Journal, whether he has ever tried the method he speaks of, or has seen it tried, with quick winding? Several years ago an engineer in our employ suggested a similar principle, but I have not yet had an opportunity of giving it a trial.

Pendlebury, Manchester. ANDREW KNOWLES.

COAL NEAR BIRMINGHAM.

SIR,—A short time ago I saw in the *Mining Journal* a statement respecting the Sandwell Park Colliery, and other particulars relating to this district, and, amongst other things, a piece of information which appeared to the mining men to be more prophetic than practical. I now refer to the fault predicted to run through the corner of Blakeley Hall Estate into Spon Lane; and results have shown that the writer has had the same good luck as the old almanac maker had when, owing to a mistake, snow was predicted in harvest, which did come; and this piece of good luck—a snowy day in harvest—raised the character of the almanac to so great a height in the estimation of the public that the fortunate weather-wise man became in a short time a millionaire. Whether our mining prophet will gain the same amount of distinction and £ s. d. or not remains to be seen; but, strange to say, the fault has been struck in the Blakeley Hall gate roads, which, judging from reports, is a good-bye to the coal. But where the fault springs from, and where goes it to, the prophet has not informed us; nor does he say whether we are to look forward with reasonable hope for coal on the other side of it.

Many of us in this district have diligently enquired day by day from parties connected with the property how the coal looked, &c.; and until the report of the fault having been struck became known a strong hope was entertained that not only Blakeley Hall would prove a great success, but that a considerable district would be proved to contain the black diamonds, on the abundance of which the future prosperity of our district absolutely depends. This hope is marred by the discovery of the fault, and until more is known of its course and character we must comfort ourselves as best we can. How much of the Blakeley Hall coal will be lost is not known, but we have heard with great pleasure that there is plenty of coal proved to pay the bondholders their 30,000*l.* or 40,000*l.*, and we should like to hear also of the shareholders doing as well as the bondholders. At any rate, they may be confident now they have Mr. Plant on their board of directors that all that can be done for them will be done, as it is well known that whatever he puts his hands to is sure (if possible) to be done well, and with all his might, but if the coal is cut out by a fault he cannot make coal. With best wishes to your prophet, and hoping to receive more information respecting this fault (if he knows anything about it), whence it starts, and where it runs into Sandwell Park Colliery, &c., and if it runs into the Spon Lane Colliery Company's mines, now about to be opened.

West Bromwich, April 8. ANXIOUS FOR INFORMATION.

MINING IN THE ABERYSTWITH DISTRICT.

SIR,—As mining appears to be, upon the whole, coming forth with the spring in a more satisfactory condition, and there being a greater degree of confidence and certainty of its future becoming more successful than for some years past, I may take the opportunity of mentioning that there are many mines in this part of the Principality well worthy the attention of gentlemen who are anxious to dip into legitimate and honest mining, which I may venture to say in Cardiganshire and adjoining counties may be met with in truth and in abundance. Having been otherwise engaged for the last three years, I could not add to the list of your weekly correspondents as heretofore, but am now prepared and anxious to do all in my power to render that assistance that may be required to bring mining and all its branches into activity throughout the whole of the Principality. I shall from time to time refer to some of the mines, both young and old, most likely to become good, and do my best to render mining of this county profitable, as well as to further and assist to the fullest extent in its becoming ere long one of the best lead mining districts in Europe. It has enjoyed that character, and maintained it well, for centuries, but I hope it is as yet in its infancy—in fact, I am confident such is the case, knowing it from north to south for upwards of 30 years. Mines that I have spoken well of from time to time have done more than I could have expected, as will be admitted by those who have acted upon my reports, and I trust all will acknowledge that what I did was at all times for the good of legitimate and honest mining. May this summer prove a successful harvest in mining throughout our happy and peaceful land. SAMPSON TREVETHAN, C.M.E.

Rheidol Cottage, near Aberystwith, April 6.

HALKIN (LEAD) DISTRICT.

SIR,—The Holywell and Halkin district, in Flintshire, is the richest and has produced larger quantities of lead than any other in the United Kingdom. The following mines, all situate close together, and covering a comparatively small area, were enormously rich, as will be seen. Holway Mines, when at the height of their success, produced upwards of 500 tons of lead per month, and gave large profits to the shareholders. Milwr gave 129,000*l.* profits when lead was at a very low price. Penyrhenblas sold for many years an average of 80 tons per month, and gave large profits. Parys and Maeslygan each gave over 500,000*l.* in dividends. Halkin Mines produced for years upwards of 400 tons per month, and Pant-y-Go was equally rich; both these mines contributed largely to the wealth of the late Marquis of Westminster. Rhosesmor and Deep Level have been rich within recent years. The chief mines now working in the district, and to which I have lately paid attention, are the Prince Patrick, South Prince Patrick, Saint Patrick, Grosvenor, and West Milwr.

THE PRINCE PATRICK is at present the most productive, and contains the richest course of ore in the Principality; in addition to this course of ore there are several east and west veins which are being developed, and which will materially add to the present return of lead ore, which is 55 tons monthly. This has enabled the directors to declare dividends at the rate of 20 per cent. per annum upon the capital of the company. In consequence of the improvements in the mine, and the improved price of lead, the dividends henceforth will be from 30 to 40 per cent. As to the management, it is entrusted to Capt. John Lloyd, who is well known as being one of the first authorities of the day upon lead mining.

SOUTH PRINCE PATRICK is situate immediately to the south of the last named, and working upon the same lode, and although not yet so rich promises to become so. The present company has been in possession hardly 20 months, yet the directors have been able to return to the shareholders in dividends 4s. per share, or 20 per cent. of the whole capital, and another dividend of 2s. per share is due this month. The sales of lead hitherto have ranged between 20 and 40 tons monthly, but the recent improvement in the value of the lode will allow, it is anticipated, of 40 tons per month for the future.

ST. PATRICK MINE has lately come into the possession of a new company, and the promises of early success are unusually great. That which costs so much time and money—the sinking of the engine-shaft—has been accomplished by former proprietors, therefore very little time and capital will be necessary to place the property in a profitable state. Never perhaps before has such an opportunity presented itself to the capitalist. The present proprietors have simply to drive a cross-cut from the bottom of the shaft to intersect the rich east and west lodes of South Prince Patrick and Grosvenor Mines. The mine is situated in the centre of the rich district, being bounded on the north by Maeslygan and Parys Mines, on the west by Prince Patrick and South Prince Patrick, on the south by the Halkyn and Parys Mines, and on the east by the coal measures. It is at the junction of the limestone with the coal measures, where the limestone is covered by the chert and shale, that the lead lodes of North Wales yield their extraordinary wealth. In proof of this, note Minera (whose chief lode is nothing more nor less than the great fault which runs through the Ruabon coal field, and which causes, or has caused, an upheaval of 150 yards), Talargoch, Milwr, Maeslygan, Halkyn Deep Level, and others could be named.

GROSVENOR MINE is situated to the west of Prince Patrick, has recently come into the possession of a new company, and promises well. Already valuable discoveries have been made upon the China Rake and other lodes. This property is under the same management as Prince Patrick, which is a guarantee that it will be fairly and efficiently developed.

WEST MILWR comprises the Milwr and maiden ground westward, traversed for the whole distance by the champion lode of the immediate district. This property, although comparatively unknown to the general public, is being watched with great interest by the cognoscenti, who anticipate at no distant date a grand discovery. The chief object of the proprietors is to intersect the Milwr lode in the maiden ground above alluded to, and as this lode has never failed wherever wrought to produce large quantities of lead, the expectations here are certainly justified. VIATOR.

MINING IN CARDIGANSHIRE.

SIR,—It appears to me that the time is opportune to draw the attention of parties embarked in mining in this county to the great importance of every mine making moderate returns, and that would wish to carry out working with regularity and dispatch, to the importance of having steam-power available for all purposes at command, in addition to water-power. Anyone who will take the trouble to go through the reports of the mines I speak of will, and must, be struck by the oft-repeated, "in the summer," "our machinery is idle owing to a scarcity of surface water;" "in winter," "owing to the severe frost all our machinery has been at a standstill;" and following, almost as a matter of course, "a thaw has set in, and we are now waiting for rain in order to get a plentiful supply of water," &c. Anyone who has had much to do, and everyone who is practically acquainted, with mining knows what the meaning of this is. Not only are the mines kept idle during the time of dry weather, frost, and after that, but it requires a long time to fork the mines, and to get into a regular state of of working after each of these circumstances. Attended with great cost, in addition to agency, and other matters—in fact, none but a few of the best of them (the mines) can live under such circumstances; and I was going to say (for I believe it) all the mines so situated had much better abandon proceedings than carry on in such a manner, as it extracts the wealth of the county to no purpose, doing no good to anyone concerned but the agents, and only half affording employment to the staff of miners they are supposed to find employment for.

In my pamphlet, entitled "History of the Cardiganshire Mines," &c., at pages 123-33, I have treated the mines requiring machinery at some length, and which it will be useless for me here to recapitulate. A circumstance has happened since the writing of that, however, which renders the necessity for taking immediate action in this matter all the more necessary in some of the mines I there spoke of. On March 25 last, it would appear that the lease of a water-course, which conveyed water first to East Darren, and from thence to Cwm Erfin, thence to South Darren, Old Darren, and lower down the valley to Bronfloyd, expired; and as the ground through which this water-course flowed had changed owners, the incoming landlord or purchaser, through his agent, made a demand of 1000*l.* for it having passed through the ground, and an annual rental of 300*l.*, and these terms not having been acceded to the water supply was cut off at the Quarter-day. Unless, therefore, my suggestions are attended to some of these mines must stop altogether, whilst others may struggle on for the time being; but wherever mines are situated such as these, and are placed at the mercy or caprice of such gentlemen, I am sure that all must concur with me that, unless the shareholders are in a position to supply the mines with adequate steam as well as water power, they had better by far abandon their properties to those who would do so. But most of the mines I have named are looking exceedingly well, and I, for one, fully believe that their being driven to do what might remain undone for years is the very best thing that could happen to them, and that it will be the means

of driving them into a state of prosperity, instead of wearying through a lingering illness, and perhaps a fatal one.

There is no county in the kingdom that offers greater facilities for working mines by water-power than Cardiganshire, and I say by all means make the most of it, but do not abuse that power by keeping the mines half-worked through the year, and which can only end in increased expenditure, less returns, and an improper and improvident way of carrying on the business relating to them.

I have written this with a hope that it will offend none, and that it may be the means of opening their eyes as to the real necessity which exists if they wish to have lasting and prosperous mines.

Goginan, Aberystwith, April 6. ABSALOM FRANCIS.

LEAD MINING IN THE COUNTY OF GLOUCESTER.

SIR,—Spending a few days last Easter in the Bristol district, and going about on the northern side thereof, I was rather struck at the similarity of rock thereabouts to what is associated with lead ores in other parts. I do not think an attempt at sinking for lead has ever been made in the county. I may be quite out in my deductions; but if any of your readers are disposed to make the experiment allow me to suggest Westbury-on-Trym,* near the weighbridge or road to Horfield, as a spot where trials could probably be made without any great outlay, as at the locality in question there are one or two disused limestone quarries, partially filled with water. The limestone appears to run in this direction, apparently from and south-west of Clifton, in the direction of Thornbury. Perhaps some of your business and monied correspondents may be disposed to enquire further for themselves.—*London, April 2.* EXCURSIONIST.

* Taking milestone, two miles from the standard, Park-street (*query*, Clifton), in Durdham Down, and close by is a road leading to the weighbridge in question.

NEW WORKS AT NEW CONSOLS.

SIR,—I have no doubt Mr. Lucas has stated exactly what was represented to him, but how is it that he has not given any cost for the ore? Is it to be supposed for an instant that any mine can raise and deliver, to say nothing of royalty, rates, and other expenses, 400 tons of mineral per week for nothing? It may be as well to say that precipitate of 40 to 65 per cent., and 100 to 370 ozs. of silver per ton is not much within 8s. or 9s. per ton, what is here stated, as he will find that silver in precipitate will net nearer 3s. 6d. per ounce than 5s. Finally, let me tell him that there is not the slightest difficulty in treating poor mixed ores to a profit if they only contain 2 per cent. copper and 5 ozs. silver per ton, provided a sufficient quantity can be raised and delivered at a price that will pay the mine. It is a question of supply, not of treatment. E. D.

SUCCESSFUL AND UNSUCCESSFUL MINING.

SIR,—Your esteemed correspondent, Mr. Thomas Henry Allen, addresses me in last week's Journal with the familiarity of an old friend, and although I have not the pleasure of his acquaintance he appears desirous of cultivating mine. He addresses me as though it were verbally—"Mr. Knapp, will you kindly inform me who penned the following sentences a few months back?" quoting them, detached and disjointed, from a letter of mine which was published in the *Mining Journal*, authenticated by my name. I should have thought that a person of his general intelligence might have known that the signature of a letter was ordinarily accepted as its attestation of authorship. I hope that this explanation may be deemed satisfactory.—*Llanrwst, April 6.* ROBT. KNAPP.

TECHNICAL EDUCATION PUERILE WITHOUT PRACTICE.

SIR,—The truthfulness of the above heading has been amply illustrated of late by the numerous writers in the *Mining Journal*, who assumed to possess special qualifications for mining on the alleged ground of having been favoured with a technical education, Mr. J. Roberts amongst the number. It is to be regretted, however, that their letters do not strengthen, or even support, that assumption. The above-named gentleman evidently felt disconcerted at the reception his arrogance and temerity procured for him. He seems not to have calculated upon the possibility of getting kicked by the animals he so wantonly provoked. He certainly assumed to be priviliged on the conceit of self-culture and self-credited attainments, and no doubt concluded that the publication of these to the world would secure for him immunity against retaliation, however much it might be merited.

He taunts me with having failed to find the "lion's skin," and sagaciously discriminates—inferentially at least—between the king of the forest and quadrupeds. If I were disposed to spitefully retort I might reply that my failing to find it was because he had previously assumed it, and unfortunately mistook its inhabitant for the lion himself, but then he should not have brayed. If he had not committed that indiscretion he might have passed a little longer for something superior to a quadruped, but his position now, as indicated above, need not be more pointedly adverted to. I do not know whether Darwinism would afford him additional encouragement to persevere with studies which he tells us so bother that little organisation he calls his brain. An acquaintance with the development theory might add a stimulus to his further exertion, especially when checked by unexpected reverses, and induce him to carefully re-examine the extent and utility of his supposed attainments. If I might proffer him advice the best I could offer would be "Mind your own business, and leave the business of others to be attended to by them." And as to mining criticism, I think it is very doubtful that he will ever be competent to undertake that duty.

A CORNISH QUADRUPED.

MINING INVESTMENTS—WHY ARE THEY UNPOPULAR?

SIR,—From time to time letters appear in the Journal explanatory of the causes which have so seriously oppressed mining stock of late. Many of them undoubtedly point out serious defects that need to be remedied, but scarcely ever have I seen one cause touched on which I know goes far to make investors shy of touching mines—I mean the want of confidence in the statements put forth by the managers in their reports. I will only quote a couple of examples in illustration. In the report which Mr. Waters furnished for the fourth annual meeting of Roman Gravels he states, under date April 15:—"Before this year is out I expect to have the new south engine-shaft down to within reach of the great and rich lode at and on both sides of Corfield's," and then proceeds to foreshadow 300 tons a month. I have yet to learn that this work is completed, or likely to be within two months—*i.e.* some five or six months beyond the time specified. How is this? Mr. Waters is no novice; he is perfectly familiar with the mine he is writing about, and yet his calculation is so egregiously out. Can he wonder that his companies fail to command confidence? Take another instance. In the report of Ladywell it is recorded, under date May 6, "that Capt. Waters was present at the meeting, and stated that suitable crushing and dressing machinery would be erected without delay, and he had no doubt that in six months from the present time he would commence making returns." This would bring us to November last, but I have not heard yet that a single ton of lead has been crushed and sold. Is it surprising that with such miscalculations the public look shy at agents' reports, and button up their pockets? Directors, if they were worth anything, would see that their shareholders and the public were dealt with very differently.

A HOLDER OF MORE THAN 400 SHARES.

TYLLWYD MINING COMPANY.

SIR,—Mr. D. Forrest, the secretary of this company, is strong in assertion but weak in argument. He accuses me of ignorance of mining, because I think it strange that the agent in his report, dated March 13, while valuing the winze, did not place any estimate upon the rise against the winze, The report stated, "On Saturday last we put the men to rise against the winze. They are now up from 4 to 5 ft., and we shall hole in a few days; set to six men, at 8*l.* 10s. per fathom, and clear their own stuff. The winze has been sunk in the last month 3 fms. 1 ft. in a lode 3 ft. wide, producing 1 ton of lead ore per fathom." I think your readers will agree with me that it is impossible for anyone to accuse either the agent, the secretary, or the directors of not having given since the formation of the company the widest publicity to any discovery of ore, however insignificant, and, therefore, I think it was not a heinous offence on my part to suppose that no value having been placed upon the rise it arose from the fact of there being no ore to value. In my ignorance I thought that the value of the rise would be a far more important point than that of the winze, and if wrong I shall only be too glad for Mr. Forrest, who has, doubtless, had great practical experience in mining, to convince me of my error of judgment. Mr. Forrest asserts that my letter betrays such an amount of ignorance that he is convinced I cannot understand what I wrote about, and for the following reason—"If the ore in the bottom of the winze is valued at 1 ton of lead ore per fathom how can I possibly imagine the bunch of ore has been unbottomed?" My answer is very simple. If, as the agent reports, the rise had been put up from 4 to 5 ft., and for that distance was of no value, it is evident that at that point the ore did not hold in depth, and that the bunch was unbottomed. I think I put my question in a very temperate manner by suggesting that the rise might not have been valued, owing to an oversight of the agent, although such a circumstance would have been a decidedly novel feature in the reports. I think it would have been more to the purpose if Mr. Forrest had briefly stated whether any value could have been placed on the rise at the time the report was written, instead of so palpably begging the question. I am always pleased to learn that any mine is about to pay dividends, but I fail to see any cause for surprise in the fact that the company has in two years erected a 40-ft. water-wheel, and nearly completed some dressing machinery. I may remind Mr. Forrest that estimated reserves of ore on paper are frequently fallacious, and that, however sanguine his expectations may be of probable results, it is not impossible that his mountain may turn out to after all only a very tiny molehill. I should like to know what Mr. Forrest considers "a fine bunch of ore," and what he thinks the regular monthly sales will amount to. I suppose I may enjoy my opinion that Tyllwyd has been puffed up in every possible manner, and may also doubt whether dividends will anticipate a demand for fresh capital, but I hope that any future rebuke or explanation from Mr. Forrest will be characterised by more reason and less acrimony than his last reply. C. E. W.

SOUTH BWADRAIN MINE.

SIR,—In stripping down the lode this week in the south, on the south side, we have met with an exceedingly valuable discovery. Our east and west lode that we have been following is now about 6 ft. wide, containing solid branches of lead and blende ores throughout, and letting out water freely. About 6 ft. behind our present end there would seem to be a new lode that has fallen in with our main lode. The new lode runs considerably more to the south of west than the main lode, and is composed of solid branches of blende, about 3 in. wide, and spotted with silver-lead ore throughout. We have as yet had no time to do anything on it of consequence, but shall as soon as possible have it opened on, when I shall be able to speak more of its real value. I look upon this discovery as a most important one, the new lode never having been seen at the adit level, and was consequently unexpected by us. Under such circumstances, I have never seen such a junction of lodes fail in producing very large courses of ore, and I shall be much disappointed if we do not at this and deeper levels open out one of the finest courses of ore that has been discovered in this county for very many years past. Good progress is being made in sinking the shaft from the 12 to the 25 fm. level, as well as in opening westward at the 12 fathom level. All our machinery in good order and working well.

Goginan, Aberystwith, April 7. SYDNEY ROBERTS.

TECOMA MINING COMPANY.

Sir,—With reference to the statement which appeared on p. 361 of the Journal of last Saturday, I am instructed to inform you that the company has received no advices to the effect that "the first instalment (5000*l.*) under the lease has been paid." The latter part of the report—that "the vendor has consented to some important modifications in his agreement, greatly in favour of the company's shareholders," is quite correct. W. H. HARRISON, Secretary.

Palmerston Buildings, April 9.

JAVALI MINE.

SIR,—The rise in the price of shares in this mine may chiefly be attributed to the returning confidence bestowed upon it by the investing public, coupled with the satisfactory return of 1600*l.*, yielding the high average of ¾ oz. per ton, with every probability of an increase per ton of gold, if Capt. Sohns may be credited. One or two little circumstances can be here mentioned in connection with Javali Mine which may not be without interest to the shareholders in this coming prize of the year:—1. The meetings are to be held half-yearly in future—a decided advantage.—2. A Stock Exchange quotation is to be obtained forthwith for the mine.—3. Sir Leopold Heath joins the board.—4. That the shares are very scarce indeed for delivery, and are tightly held, thereby rendering "Bear" operations a very dangerous experiment.—5. Capt. Sohns has advised the directors to expect another (at least) equally large return of gold for the month. Should this latter event come off as anticipated, and exceed the 1600*l.* already returned, the value of these shares must very soon become elastic and buoyant in the extreme. No property affords greater evidences of becoming a large dividend gold mine than Javali. The return of gold may be expected in a few days. QUARTZ.

BEDFORD UNITED MINES.

[We have been requested to publish the following letter, which has been addressed to the Editor of the *Western Daily Mercury*.]

SIR,—A friend in the West having kindly sent me a copy of your paper, containing a paragraph respecting the meeting of the shareholders in the Bedford United Mines by your correspondent, "Capt. Nemo," I must ask you to be good enough to insert my reply, inasmuch as the remarks were evidently written at the instigation of a shareholder present at the meeting, and with a view to mislead. It is true a large number of the shares in this company are held, and have been for many years held locally, but the marjority is in London and in places most convenient for this city. I must here set your correspondent right with regard to his figures. On an outlay of 2*l.* 6s. 8d. per share, or 9333*l.* 6s. 8d. the mine returned to the shareholders dividends amounting to 54,000*l.*, since which the shareholders have contributed in calls 14,300*l.* With regard to the future of the mine there is but one opinion, as everyone acquainted with the property is firmly imbued with the fact that it will again become remunerative to the shareholders. For this very reason would it be fair, after finding the greater portion of the capital to develope the mine, that the management should be taken out of the hands of the London adventurers? Where shareholders are divided into two sections it is, perhaps, desirable that an occasional meeting should be held on the mine, and, as a hint to Mr. Penrose, *vice versa*, but to say that Londoners cannot as well manage the affairs of a mining company as a Cornish or Devonshire purser is simply absurd. I should much like to go into the question of committees *v.* pursers, here, but it would occupy too much of my time, and more space than you would care to devote to such an unprofitable matter. I think I could show that it is far preferable to place the financial affairs and management in the hands of a London committee, than to invest in the hands of any single individual the whole control of shareholders' property; and experience has proved that greater confidence exists in the minds of adventurers where a body of gentlemen are appointed to take charge of their interests. There is one thing I can say, and that is that I have been connected with a great many Cornish mines in my time, all of which have been managed by a London committee, and I have no hesitation in saying that neither shareholders, lessors, or merchants, or anyone with whom we have come in contact from time to time, have ever had cause to regret their association with a committee or secretary in London. As to the meetings of shareholders, whether attended by few or many, the business of the company can be conducted in such a way as will bear comparison with any county meeting, when the regular attendents have an eye to something more substantial and invigorating than the humdrum of the purser, as he passes from accounts to report, and when but few if any questions are asked, and all taken for granted.

Your correspondent gives rather more credit to Mr. Penrose than is, perhaps, his due, when he talks about London shareholders having the courage to do what he did. Why, for months and months past the shareholders have talked over the terms of the lease, and the interference of the agent of the lessor, and instructions have been long in the hands of the agent of the mine to work the mine in such a manner as may be most conducive to the interests of the shareholders; and as far as he has been able, he has complied with the orders given to him by the committee? What more can we do? We are too well acquainted with the covenants under which the grant is held not to know that they are arbitrary and stringent; but I question much, whether a more unjust and injudicious clause exists than the one Mr. Penrose has requested may be inserted in a lease held under Mr. Basset, to the effect that it shall be compulsory to hold all meetings in Cornwall, and at a mine where three-fourths of the shares are held out of the county. With regard to another "question of interest,"—London office expenses, or a charge of from 120*l.* to 130*l.* per annum. When I say that I receive for my services what is equivalent to 8*l.* 10s. per month only, I ask any gentlemen acquainted with mining accounts whether I am paid too well for all the labour and responsibility that falls upon the shoulders of a secretary. I am vain enough to believe that even Mr. Penrose will, on consideration, hesitate to say my pay is exhorbitant. At any rate, it is not too much to cavil at after 27 years' of, I hope, faithful service. The rent of London offices is high, we know, but printing, stationary, postages, &c., must be provided, let the office be where it will. Residents in glass houses should not throw stones. I happen to be unluckily a shareholder in a mine which is controlled by Mr. Penrose, where his salary for the year is equal to, if not exceeding, the whole of my remuneration, office rent and expense put together, and with two clerks to do his work, and where the agencies (including pursership) amount to 540*l.* per annum, independent of small bills and sundry stems, which amount in the year to a considerable sum, and the details of which might be a study for shareholders. Although I certainly felt, and still feel that the action of Mr. Penrose was not so much the reduction of expenses (his economical principles he might well adopt at home) as a disposition to deprive me of a position I have now held the greater part of my lifetime, I have no wish to be at varience with him or anyone connected with the company in any way whatever. Where shareholders are divided it is to their common interests that each should try to serve the other, and where there is a disposition to "pull and pull altogether," as has been the case here for nearly 30 years, all will go well, and shareholders will rest satisfied that all is being done for their interest and benefit; but where contention exists, confidence is and will be shaken. I am proud to say that with the purser, the late and present agent (father and son), I have never had a disagreement of any kind, but that we have worked together with a will, to gain the esteem and trust of our employers. As your correspondent remarks, "I have crossed swords with Mr. Penrose," and although I can bear "a jolly good licking," as he facetiously puts it, with good grace, I am not blind to the fact that mutual confidence had far better exist with respect to Bedford United and another mine elsewhere than a prospect of continuous struggles. T. B. LAWS.

28, *Cornhill, London, April 2.*

[For remainder of Original Correspondence, see to-day's Journal.]

IRON AND STEEL.—Mr. H. AITKEN, coal master, of Falkirk, has patented an invention for—1. The formation of pig-iron with cores of fluor spar, or fluorides and oxides, or of the other substances set forth—2. Using fluor spar or fluorides and oxides, or the other substances set forth, in lumps which are charged into the furnace with the pig-iron—3. The using of the substances set forth stratified in the iron.

EPPS'S COCOA—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame."—*Civil Service Gazette.*

Meetings of Public Companies.

INDEPENDENCE GOLD QUARTZ MINING COMPANY.

A general meeting of shareholders was held at the offices, Royal Exchange Avenue, on Tuesday,—Mr. JAMES E. SMITH in the chair.

Mr. D. CORNFOOT (the secretary) read the notice convening the meeting.

The report of the directors stated that from time to time the shareholders had been informed of the position of the company, and are aware that it having been found impossible to raise further capital the company went into liquidation in April, 1874. Shortly afterwards, however, intelligence was received by them that auriferous quartz] in paying quantities had been discovered in the East Shoot, upon which the directors, instead of proceeding to a sale of the property, decided upon continuing operations, strictly limiting the outlay to the profits made by the mill, and by the end of the year about 10,000*l.* worth of gold had been extracted from this shoot alone, enabling the directors to extinguish all debts in California, and to sink the shaft for the development of the Middle Shoot. So favourable a change having taken place in the company's prospects, the directors considered it their duty to advise the rescinding of the resolution to wind-up, which was carried into effect at the special meeting held in January.

The directors did not feel justified in recommending the above course without having the command of a small amount of additional capital, and, therefore, determined on raising 12,000*l.* in 8 per cent. debentures, repayable with a bonus of 15 per cent., and this amount has been fully subscribed. It should, however, be mentioned that the actual additional available capital amounts to only 6000*l.*, the remaining 6000*l.* having been accepted in payment of promissory notes of the same amount, which notes had been issued by the directors prior to going into liquidation. The total capital of the company at the present time, therefore, consists of 100,000*l.* in shares and 21,000*l.* in debentures. The profit and loss account for the eight months during which the resolution to wind-up was in force shows a profit of 1383*l.* after charging all expenses.

The result of sinking the engine-shaft to a depth of 104 ft. below the 5th level, and then cross-cutting the vein within 10 ft. of the bottom, where the 6th level is being started, has been most encouraging, as in this (undoubtedly the most important part of the mine) very rich ore has been discovered. At the present time the extent of the pay chimney cannot be stated with any certainty, but there can be little question of there being a large body of quartz standing on the hanging-wall side of the vein between the 6th (now commenced) and the 5th levels, 100 ft. above, as the cross-cuts north at both of these points have been through and continue in good ore. The eastern shoot between adit and 5th levels continues to yield good rock, and the stopes are looking well. The vein in this shoot also is being cross-cut in the expectation that another branch of the lode will be met with. The western shoot is yet unproved below adit, but when the 5th level was last run towards it there were unmistakable signs of approaching the pay chimney; the work of development will be proceeded with in this quarter.

The directors are led to believe that sufficient stopes will be opened within the next two or three months to warrant the re-erection of the old mill, thereby increasing the crushing power to 44 or 50 stamp-heads; with this additional milling capacity a good profit can be made out of quartz of a very moderate grade, as the average cost of production per ton would be considerably reduced. Good monthly returns may now fairly be looked for, and everything up to the latest mailed advices was progressing satisfactorily. It is only fair to observe that the working expenses are charged against the proceeds of the Eastern Shoot alone. The Middle Shoot, which is now being developed, is found to be highly auriferous, and the Western Shoot, as before mentioned, will shortly be opened up, so there are good grounds for anticipating a profitable future for the company's operations. The 20-stamp mill, hoisting works, and machinery are in excellent order, and continue to work with regularity and efficiency, there being an amply supply of water for all purposes.

The CHAIRMAN said when this report was circulated the directors were highly satisfied with the condition and prospects of the mine, notwithstanding all previous drawbacks, and the extraordinary storm that had inundated the mine. They knew the capabilities of the machinery were equal to any and every emergency, as was proved by the fact that within a week of the time the pumps were set to work the workings had been unwatered, the operations resumed, and everything proceeding satisfactorily. To their great surprise, however, they received a "cable" from their financial agent of a very different character from what they had anticipated by the letters received from the mine. As from every source they had been informed that everything had been going on most satisfactorily they were anticipating good results, when this "cable" somewhat startled them—"Result of last month's clean-up, $3150; total expenses, $4750; 1000 tons crushed. The rock is poor everywhere." This came the same week they were receiving letters stating that no alteration had taken place in the ore, which rather surprised them, as might be imagined, as they could not possibly account for such a discrepancy. They instantly "cabled" out for more information, asking how it was such an alteration had taken place, and for a statement of the actual position of the mine, and likewise the important question, "Have we been deceived?" To this a reply was received as follows:—"Found good pay ore in middle shoot above adit level; mine doing better. Prospects good for profits after this month." That looked well, but there was no attempt to account for the reason the ore had been so poor throughout the mine, so different from what had been anticipated. The directors had, therefore, sent a qualified man to thoroughly inspect the mine, and in whose opinion implicit confidence could be placed. He need hardly say as soon as the report had been received either a copy would be forwarded to the shareholders or a special meeting of shareholders convened. It was very unsatisfactory to the directors to find the clean-up so small, as after the mine had been shut up from the effects of the flood, and had again been opened, they had every reason to expect the clean-up for February might have recouped them the small outlay for the partial destruction of the flume. They had a very large interest in the concern, but they were more anxious on account of those shareholders who had placed the utmost confidence in them—for this reason they had determined to lose no time to obtain the opinion of a person of considerable practical ability and of unimpeachable integrity; and he (the Chairman) trusted that there would be a thorough investigation of the past, and that such evidence would be afforded as to fully justify a hopeful reliance upon a successful future. It was very easy for people to think the directors had been wrong, On the first blush it might appear that the produce had been got rid of, as they found that the captain and clerk had been away at different times from the mine, affording an opportunity of making away with some of the amalgam, which he was told could be easily abstracted. Attached to the report now before the meeting the directors had given three separate accounts—one to April 30, when liquidation was determined upon, the next the balance-sheet to December, 1874, showing what had been expended, and the financial position of the company, and then the profit and loss from May 1. During the eight months gold to the value of 10,000*l.* had been produced. It was impossible, however, to make a large return with only 20 stamps, as the expenses were fixed—that is, the dead charges remained nearly the same, whatever the extent of the underground operations, or the number of stamps at work. They had, however, determined not to erect more stamps until perfectly satisfied that the ore was of sufficient richness to justify such a step. As soon as that had been thoroughly ascertained no time would be lost in erecting the mill. There was an item in the balance-sheet which appeared to be very large—that of directors' fees. In one account it stood at 916*l.*, in another at 1250*l.*, and in the third 353*l.* Those three amounts were really comprised in the one item in the balance-sheet of 1250*l.*, and had accumulated since the commencement of the undertaking. The directors had never received one sixpence, and were quite willing to allow their fees to stand in abeyance, as they still with confidence looked forward to the time when the shareholders would cheerfully set it apart from the divisible profits of the company. The directors had laboured long and laboriously, and would continue to do so, as, apart from their large personal stake in the company, their friends were also deeply interested, therefore they must carry it on as far as they possibly could without fee or reward, with the conviction that they had done their utmost to bring the adventure to a successful issue. Far more substantial and satisfactory would be to them the thanks and good wishes of their fellow-shareholders than any reward that could be voted, and to ensure that end no effort would be spared, and they still looked forward with great confidence to satisfactory results yet being realised. He then moved that the report and balance-sheet be received and adopted.——Mr. GUTIERREZ seconded the proposition.

Mr. SLOUS asked if there was any objection to the various cablegrams being read—those speaking of enormous profits and those conveying the unsatisfactory intelligence, as it seemed impossible both could be true, so short a time elapsing between the receipt of the one and the other?

Mr. CORNFOOT read the various telegrams as received from Prof. Price—one stated that the rock was good in the cross-cut at the bottom of the shaft. Two letters, it was stated, the same day describing the rock as the best ever seen in the mine, and that samples had been taken from that part of the mine which had assayed $160 and $700 respectively per ton.

Mr. SLOUS understood that one cablegram asked Prof. Price whether the present state of the mine confirmed his previously expressed opinion.

Mr. CORNFOOT said that he had forwarded that cablegram at Mr. Schofield's expense. The question was—Does the ore in the shaft hold good? The reply was, Yes.——Mr. SCHOFIELD remarked that six days elapsed between the bad telegram

—which also came from Prof. Price—and the satisfactory reply. He then proceeded to read extracts from various recent letters, which did not in any way refer to a falling off in the produce. He (Mr. Schofield) could not allow the present opportunity to pass without noticing the fact that the company had been very greatly indebted to their Chairman for his exertions in obtaining subscriptions for the debentures. He (Mr. Schofield) had 15,000*l.* in the company, and he believed the Chairman had even a larger amount. He believed the property to be valuable and until he had a reliable opinion of an opposite character he should still believe it was one of the finest quartz veins ever seen in California or elsewhere. A crosscut had been driven 20 ft. in the sixth level, and no north wall reached, one rich streak of gold had been passed through, and there was yet a large lead still to drive through, besides north and south in an unknown country, believed to contain a lead for a considerable distance on either side. There were also the two same ledges on either side that passed through Sierra Buttes. He believed the great mistake had been in extracting 10,000*l.* worth of gold from the Eastern Shoot—it had not done the company any good, because the captain had mined it away in order not to call upon the shareholders for more money. That must not be done again, but the mine must be worked properly and efficiently. He had never sold a share, but held more shares than he originally subscribed for. It was important to mention that the machinery was perfect, powerful, and equal to all requirements, as was shown by the fact that as soon as the storm had subsided there was no difficulty in keeping the water. He was afraid there would be a loss this month, but he did not think it would be anything considerable. There was a balance of 4000*l.* to 5000*l.* of the debenture money, which would enable them to put up an additionable number of stamps, and increase the output. If they could work the mine at $4½, and the average yield was about $6, that would give them $1½ per ton profit, and in the meantime by exploring the mine they did not know what they might come upon, as these rich deposits of ore in quartz mining were exceedingly capricious. The Sierra Buttes Mine was now in exactly the same condition, and it was the same with all those quartz veins. He trusted they had enough money in hand to prosecute the development of the mine vigorously, and he had no fear of the result.

The CHAIRMAN, in answer to a question, stated that the new captain who had gone out had power to remove all or any of the men at present employed, but no power to interfere with the financial agent.

Mr. ASTON asked if Prof. Price was at the mine when the favourable intelligence was forwarded.——Mr. CORNFOOT said that he was not, but that all his letters and those of the superintendent bore it out.

Mr. SCHOFIELD considered the company's water rights to be worth 20,000*l.*

After some further discussion the reports and accounts were adopted.——Mr. Harris was re-elected a director.

A vote of thanks to the Chairman and directors closed the proceedings.

SIERRA BUTTES GOLD MINING COMPANY.

The ordinary general meeting of the shareholders was held on Thursday, at the Cannon-street Hotel,

Mr. LEWIS R. PRICE in the chair.

Mr. JOHN SAUL (the secretary) read the notice convening the meeting, and the report was taken as read.

The CHAIRMAN said that the report would require no explanation, except in so far as to show the position of the company, and the reason the directors had had for not proposing a larger amount of dividend than 2s. per share. It would be remembered that at the last meeting they had asked and obtained the sanction of the shareholders to an alteration in the system of paying quarterly dividends, which in practice had proved very unsatisfactory. He had then stated that although they had apparently a large balance of earnings in hand, yet a sum of 7618*l.* was locked up in stores at the mine, and that this, although a perfectly valuable asset, was not available for distribution, inasmuch as they had no working capital, and they were thus obliged to provide for current expenses of every class out of the earnings of the mine. He had also stated at the time that the winter supplies were about to be laid in. If they turned to the accounts they would see that the amount of materials at the mine was stated at 11,133*l.*, or nearly 4000*l.* in excess of what it was in the previous account. They also stated that there was 3000*l.* divisible in cash beyond the amount locked up in stores, and the point then discussed was whether this sum should be carried over as a balance, paying no dividend, or whether, having received a large amount in remittances, they should not take from the earnings of July and August 6000*l.* in round numbers which they could apply to the purpose of a dividend. After some discussion the general view then taken by the shareholders was that it would be much better to pay the dividend then, and suspend the future one, as the shareholders living at a distance were quite unprepared for any suspension of dividends. The dividend was paid by taking 6000*l.* from the next six months, and they, therefore, commenced the half-year with a deficit to that amount, which might possibly have been made up by the improvement in some of the stopes or workings. This, however, did not occur, and not only had they to contend with the ore maintaining its low average, but there was a serious falling off in the month of September, which showed the lowest yield they had ever yet had. The receipts from the ore were only $28,166, and the expenses were $34,364, leaving as profit the very small sum of $3802, or about 750*l.* The working expenses had increased to $5·32, and the consequence was that between the low average of the ore and the increased expenses the profit per ton was only 4s. 6d. In the month previous to that the average of the yield of ore had been $8·73, and the working expenses $4·56, so that the poor ores were saddled with a much higher expense than the better class of ores of the previous month. In the following month of October the yield began to improve, and they got nearly $7, with the expenses at the same moderate rate of $4·56, below which he did not think there was much prospect of reducing it. This difference of half-a-dollar a ton would make something between 5000*l.* and 6000*l.* a-year, which was a serious consideration on the large amount of ore which was being worked up. To sum up in a few words the financial position of the company, he might say that they began the half-year with 6000*l.* minus. They had increased the stores, which was money locked up, by about 4000*l.*, and now they proposed to ask them to sanction a dividend of 2s., which would amount to 9750*l.* The total earnings for the six months were 19,733*l.*, and the payment of the dividend would nearly absorb the amount of the earnings not locked up in the stores. They believed that in limiting the dividend to 2s. a share they had been carrying out as far as practical the wishes of the generality of the shareholders. They were aware that some gentlemen thought that they should divide the residue of the money, and borrow, but the board thought that this was not what was understood. It was their desire to meet the wishes of the shareholders, and if they did not adopt them they reported this to the shareholders, to have corrected if necessary. They also believed that the real value of the shares would be improved by the suspension of the dividend rather than by paying it. The company was now in a much sounder condition; the money, it was true, was locked up in stores, but it was still a valuable asset, whereas if they were to borrow on these it would not stand in such a favourable position. The money now paid was strictly paid out of bills that had belonged to the half-year, and which had matured in the usual way, there having been no discounting for loans, and anybody, after examining into the accounts would be inclined to pay a higher price for the shares now than if the money had been divided. They had two bills in hand, which had only just arrived, for 2000*l.* and 2500*l.* respectively, belonging to January and February, and which would go towards the next dividend, so that they were beginning the half-year with clear accounts, and placing to their credit all that was legitimately earned. (Hear, hear.) With regard to the mine itself, he could only say that the quantity of ore was reported to be as great as ever. It was unaccountable how the depreciation took place. They had found by experience in the large number of stopes they had had that wherever a rich one gave out some others cropped up to supply its place, and it was a curious circumstance for them all to give out at the same time. In January of this year the ore was still low, it was $6·44; but in February it averaged $7, and a telegram just received led them to expect an improvement. They began some time ago on a very small scale a seventh level, which was 300 ft. below the sixth level, so that in course of time, without any very great annual expenditure, they would have a sufficient supply of ground opened out. It would be some 18 months or two years before they should want it, and, therefore, the expenditure was regulated accordingly. On the 19th inst. the agents wrote that they had reached the vein in poor ore. There was nothing to be hoped for at the present moment from the fact of their having reached ore, and he did not wish to excite hopes that would not afterwards be realised. They might carry on with poor ore for some time, and their experience of the sixth level would induce them to think so. In one of the last paragraphs of the agents' report they advised the erection of concentrators for the tailings. The board were quite alive to the importance of the erection of these machines, and had been saving all the tailings until suitable machinery had been erected. It was quite possible that the low yield of the ores might be attributable in some measure—and he only gave this as a theory—to the increased depth in the mine, and as they got deeper it was most important to settle the way in which they could best utilise the sulphurets in the ores. They had to consider how the funds were to be supplied most economically and beneficially. The board had thought that it would be imprudent to undertake any works at the Sierra Buttes until they saw the ore and the benefit to be derived from these new erections. Turning to the Plumas Eureka Mine, the accounts were made up in the usual form, and there was little for him to say. The mine was looking well. In November last, when it was in an unfavourable position, Mr. Moore was made superintendent. He was a very intelligent man, and since taking charge there had been a decided improvement in the whole of the mine. They were authorised at a meeting held some time since to raise 15,000*l.* for the purchase of the Mammoth and the reconstruction of the tunnel. That money had all been expended on this, and now stood debited in the account at 15,248*l.* They had been obliged to take this at 10 per cent., but the mine had improved, and they had received remittances, of which the sum of 5000*l.* had been paid over against the loan, which was at the present time reduced to 10,000*l.* They had also arranged that the balance should only bear interest at 7 per cent. in future, and the lenders would be content to allow it to remain for three years, payable off in the ratio of 3000*l.* the first year, 3000*l.* the second year, and 4000*l.* the third year. Their object in making this arrangement was that there were several ways of dealing with this money—by increasing the capital, which all were opposed to; by paying off the whole 15,000*l.*, and not making any division of profits until such had been accomplished; this also was objectionable, and therefore they adopted the present arrangement. They had in their hands another bill of 5000*l.*, and they expected to get 3000*l.* each for the months of March, April, and May, and proposed, as soon as sufficient money was received, to make a dividend. As to the prospects of this mine, they had got four ledges that had been opening up lately. There was the Clamper shoot, 457 ft. long, in the Harper tunnel, cut at a depth of 150 ft. by the Catin tunnel, and opened up for 200 ft., showing a width of vein averaging 8 ft. There was a new lode in the Harper tunnel, and in the Catin north there was another lode they had discovered. This latter was described as totally distinct from anything else they had had before. In the Mammoth tunnel they had come upon new ground which might be very productive; the ground here was thought to be totally barren, but between the Eureka and Clamper shoots they had opened out another body of ore which was never known to exist before. Therefore everything seemed to be improving, and they were erecting concentrators and everything necessary for the reduction and concentration of the ore. At the period when this was determined upon the winter was approaching, and it came rather suddenly, greatly hindering the erection of these works, but he believed they would now be finished in the course of a month. The concentrated sulphurets were estimated to yield $236 a ton, and about 21 per cent. was estimated as the expense of working it. It was believed that the concentrators would pay their cost in about three months. There had been already 3853*l.* spent on the permanent works of the Plumas Eureka Mine, for the boarding-houses and concentrators. He (the Chairman) then moved "That the report of the directors, together with the accounts, be received and adopted."——Mr. JOHN S. NEALL seconded the resolution.

The CHAIRMAN, in reply to several questions, said that they had saved as much water as possible, and they had now got a much larger supply of water than they ever had before. They had learnt that on March 7 some snow had fallen; of course, they could not state what the season would bring forth, but they could only hope that the supply would continue.

Mr. STANLEY explained that they could only ensure water supply for a moderate year, for it would take three times the capital of the company to store water for two years.

The CHAIRMAN explained that it was their intention to have an independent visitor at the mines, but they had not been able to carry this out; the man who was now managing the Sierra Buttes had been there for 16 years, and he was one of the first underground miners in California.

The motion for the adoption of the report was then put to the meeting, and carried unanimously.

The CHAIRMAN next moved—"That a dividend at the rate of 2s. per share, free of income tax, be and is hereby declared on Sierra Buttes ordinary shares, payable on Tuesday, April 13."——This was seconded, and carried.

Mr. Stanley was re-elected a director, and the CHAIRMAN intimated that Mr. Coulter had retired from the board, and the amount of his remuneration would be saved to the company.

Capt. CRAIGIE then proposed a vote of thanks to the Chairman, and mentioned that a friend of his, who had lately seen the Sierra Buttes Mine, was greatly pleased with its extent and appearance of permanence, and with the general opinion of the property held in the locality.

The CHAIRMAN having replied, the meeting separated.

THE ELBE COLLIERY COMPANY.

At an ordinary general meeting of shareholders, held at the offices of the company, Leadenhall-street, on Tuesday (Mr. John Jenkins in the chair), the report and balance-sheet were passed; Messrs. John Jenkins and John C. Fuller re-elected directors; and Mr. Geo. A. Cape re-elected auditor. The accounts show a net profit of 249*l.* 13s. 6d. The sales of coal during 1874 have been large, and it is, therefore, extremely disappointing that the net profit is so small, but both the normal and extra expenses of the year have been very heavy, although attention has been constantly directed to obtaining the utmost economy consistent with efficiency. The great pressure on all sides of the main gallery in the centre of the mine having threatened to close it altogether it was considered absolutely necessary to build stone buttresses to maintain a good communication with the other parts of the mine. These works it is hoped will be sufficient for the purpose; if not, a tunnel must be built. The expenditure necessary to secure the mine from fire and the roof from falling in is always a heavy item with us, and in 1874 has been exceptionally so, being about 23,000 fls. Freight on the railway having been raised 20 per cent. in September, it has acted injuriously to the coal trade, and prices which in 1874 fell about 13 kr. per ton, have in 1875 fallen considerably lower. Repairs to drawing-engine and to pumping and to winding shafts have been made during the year, and repairs to the pumping-shaft are still necessary, and will be made as opportunity offers. Buildings and engines are in order, except one boiler, which requires a few repairs. Mr. Frank Stace is still in Bohemia, and continues his superintendence of the colliery. Hilfe Gottes field is still undisturbed, but the coal trade in the neighbourhood improves, and our neighbours who have worked out close to the field report the coal of superior quality.

GOVERNOR AND COMPANY OF COPPER MINERS IN ENGLAND.

The annual meeting of proprietors was held on Tuesday at the Cannon-street Hotel,—Mr. A. BEATTIE, J.P., in the chair.

Mr. T. R. STEER (secretary) read the notice calling the meeting.

The CHAIRMAN said that on no previous occasion of his meeting them in the room had he felt so much depression as to-day, as the results of the year's working were such as to distress anyone. Having referred to the great strain which had been put upon himself in consequence of his close attention to the business of the company, and to his intended retirement from the board in consequence of ill-health, he went on to say that the accounts now presented showed an extraordinary loss of 62,000*l.*, but of that loss at least 25,000*l.* might be taken as depreciated value of stocks in hand, and about 20,000*l.* might be taken as outlay on extensive repairs, and what were called new works, but which, in point of fact, was principally for re-opening collieries which during the last few years had been allowed to be closed. The cost of that alone was 8320*l.*, and the effect had been to raise every ton of coal to nearly double what it was when he first had anything to do with the company. Probably the old directors, in pursuing the course they had done, had acted under the best advice, but he was merely stating the result of the action which they had taken. Of course coal was a primary item in the production of iron, and the loss by iron was 32,000*l.*, but some of that was owing to the failure of one of the blast furnaces. Of course there was a certain amount of profit on the tin-plate works to be set off against the entire loss, but, after making this deduction, the total loss on the year was what he had stated above.

A SHAREHOLDER asked the amount of profit on the tin-plate works?

The CHAIRMAN: 13,000*l.* These were the explanations he had to give as to the causes of the loss. Probably they might ask what the directors were doing now? Well, they had got the coal matter in hand, and that was the real element of success in these works, because if they could make iron and copper at a reasonable cost they had the elements of prosperity, but as long as coal cost double what it ought to, and whilst the strikes of workmen continued, the company could not work with success. As regarded strikes, he mentioned that during the year there had been a strike of tin plate workers for five weeks, which he calculated had prevented 5000*l.* being added to the profits. He thought it was a sad state of things that, after the experience of 1873, when it was calculated that through the strikes the ironmasters lost two millions of money, and the workmen one million, that such a sad state of things should now exist, and which was such a distressing feature of this trade. In conclusion, the Chairman moved the reception and adoption of the report and accounts.——Mr. CREWDSON, jun., seconded the resolution.

Mr. BARKWORTH (manager), in answer to a question regarding the opening of the old collieries, said that during the management of a former manager the policy was recommended of abandoning one of the most fruitful coal fields (he did not know the reason why this was done), and devoting the capital to opening up fresh coal in a new place. That policy was adopted by a former manager under the advice and with the concurrence of the then Court and the experts who were called in. The new coal field, instead of producing more than sufficient for the works, had turned out a disastrous failure; not only was there no coal, but the expenses had been enormous in consequence of the great quantity of timber required. However, the coal pit having been opened, it was an act of great responsibility, and required grert consideration, whether so much money having been sunk it was wise to abandon it, and Mr. Martin, the late manager, had it under consideration for some time whether or not it should be abandoned; but, in the end coal was never found, and all possible expenditure had now been curtailed on the coal bed, and probably in a short time it would be altogether abandoned. That had necessitated the re-opening of the other coal field, which should never have been abandoned, and which was now working satisfactorily, and if the strike terminated they would be able to raise 200 tons a-day more than at the present time. The present raising was about 550 tons per day for the working week of six days.

Mr. BARKWORTH, in answer to a question, said that if the strike was over, and the ironmaking continued, there would, as prices were at present, be still a loss on the making of rails, but on pigs there would be a profit. When the mill was closed it was not making all the pig that was required for the tin-plate workings, and they had had to keep the tin-plate works going partly upon purchased pig. There was no intention of going on with the manufacture of rails until they showed a profit.

A SHAREHOLDER said there was one paragraph in the auditors' report which might convey an erroneous impression to those who had not received any explanation; it was that in reference to the valuation of the stock, in which the auditors said, "It has been sought to place such a value upon the stocks as may bring them near to market price." In reading that he was led to suppose that they had valued the iron and other things at a price above the market price—(No, no)—he was glad to find that such was not the case, and it was satisfactory to know that a margin had been left.

Mr. W. HAWES asked whether any provision had been made to supply the deficiency of 62,000*l.* of loss of capital?——The CHAIRMAN: No.

Mr. W. HAWES: Can you carry on the works with that capital?——The CHAIRMAN: Oh, certainly.

Mr. SCHOFIELD asked whether it would not be advisable to shut up the manufacturing works entirely, and confine the operations of the company simply to raising and selling coal?

Mr. BARKWORTH: If you do it you must do it for good.

Mr. SCHOLFIELD said that was what he meant. He could not see the use of carrying on the manufacturing portion of the business, which always seemed to result in a loss to the shareholders.

Mr. HICKMOTT made some remarks with respect to the construction of one of the blast-furnaces, which he contended had not been properly built.

A short discussion of no public interest followed on the point.

Mr. W. HAWES said he thought the directors should place a clear view of the future before the shareholders before they were asked to commit themselves to any particular course, because to continue the manufacture of tin-plates and iron with results fluctuating between profit and loss, but eventually resulting in a loss, was a state of things which was scarcely satisfactory to the shareholders, and which they could scarcely be content to see go on. He was not saying a word in opposition to the directors, or disapproval of what they had done; but he simply wished them to draw up a report, with the assistance of eminent gentlemen, as to whether there is reason to believe that a profit will be made in future.

The CHAIRMAN said that at this very moment there were two practical men engaged in endeavouring to elucidate the state of affairs. Whilst the lock-out continued it was impossible to say or do much, but the shareholders might trust the Court that all necessary investigation would be made, and due deliberation exercised, and as soon as the result of those deliberations was arrived at it would be communicated to the shareholders.

A SHAREHOLDER said it would be useless to give a report until the trade was more settled.——The CHAIRMAN: That is so; it would be folly to do anything in the present state of things, except to try and stop the leakage, and put things in such a state that in the event of any improvement in the market we could take advantage of it.

Mr. BARKWORTH, referring to a question raised a few minutes before, said that the manufacture of iron had been discontinued, except such an amount of pig-iron as was necessary for the making of tin-plates. The copper works could not be abandoned under the charter. The tin-plates were made at a good profit.

The resolution for the adoption of the report and accounts was then put, and carried.

A resolution was then passed to increase the salary of the secretary, who, the CHAIRMAN said, had been exceedingly assiduous and careful in the discharge of his duty.

The CHAIRMAN moved the re-election of Mr. Barkworth as an assistant; he referred to the very able manner in which that gentleman had fulfilled his duty as manager, and expressed his belief that his services would be of great value to the company in future.——Mr. STRINGER seconded the resolution, which was put to the meeting, and carried.

Mr. James Whatman was then elected an assistant.

Mr. Gilbertson was re-elected. In proposing Mr. Gilbertson, the CHAIRMAN bore testimony to the value of the services rendered by that gentleman.

Mr. Dever was also re-elected an auditor.

The meeting was then made extraordinary.

Mr. Whatman was appointed Governor of the company.

On the motion of Mr. W. HAWES, seconded by a SHAREHOLDER, a very cordial vote of thanks was passed to Mr. Beattie, the late Governor, for the great services he had rendered to the company, coupled with an expression of regret that he felt himself unable to continue the duties of Governor.

The meeting then broke up.

SOUTH GREAT WORK MINING COMPANY.

A special general meeting of shareholders was held at the offices, Gresham Buildings, on Wednesday, in accordance with the following resolution passed at the general meeting held on Feb. 24—"That an independent person be instructed to examine and report on the mine, and that a meeting be called, with special notice to consider the same,"

Mr. J. A. SIMPSON in the chair.

Mr. GRANVILLE SHARP (the secretary) read the notice convening the meeting.

The selection of the independent person to make the inspection having been left by the meeting with Mr. Sharp and one other gentleman, who was desirous of nominating a man Mr. Sharp could not consistently consent to, in consequence of being unable to satisfy himself (and that after making personal enquiries in Cornwall), that he was a practical tin miner; being desirous not to nominate anyone himself, at the same time feeling the importance of having the right man to make the inspection, Mr. Sharp considered it advisable to consult a party in Cornwall holding a large interest in the mine. The result was that Mr. Sharp requested Capt. Harris (manager of the Great Wheal Vor) to make a very careful inspection of and report upon the mine. His colleague not being quite satisfied, Mr. Sharp consented to his nomiuee making an inspection in conjunction with Capt. Harris, but for each to make his seperate report.

Mr. SHARP explained that it was upon the recommendation of Messrs. Harvey and Co., of Hayle (who held 200 shares), Capt. Harris had been requested to report upon the mine.

Capt. Harris, in his report, stated that there were points in the mine that ought to be reached—the intersection of the engine lode with the Perran Downs lode, which would be met with in about 40 or 50 fms. driving from the present end of engine-shaft. This is certainly a point of interest. There is also the intersection of the engine lode with the flat-rod shaft lode, which takes place in about the centre of the ground between the two shafts, and as both lodes contain a little tin, no doubt, about the point of intersection an improvement would be met with. These two points could be proved in about eight months, and provided no tin should be returned the cost would not exceed 1200*l.* After carefully considering the present position of the mine, the probable returns and costs for the ensuing four months he estimates as follows:—Tin, with about the present number of men, 3 tons 10 cwts. per month (say, at 25*l.*) 182*l.* Cost for same period, 270*l.*; loss per month, 88*l.* With this limited scale of working no great improvement could be looked forward to, but in setting ont for an object such as he has named there would be a prospect and a chance of being remunerated for the outlay, but he could not advise spending money as at present.

A subsequent communication was received from Capt. Harris, stating that in consequence of Messrs. Harvey and Co. having heard that an improvement had taken place in the flat-rod part of the mine they had requested him to make a further inspection, which he did. In his supplementary report he stated that the prospects in the 35 west were really too good a thing to abandon at present depth.

Mr. SHARP mentioned that he had that morning received a letter from Messrs. Harvey and Co., informing him that Capt. Quintrall (of Trumpet Consols), after an inspection of the mine, had made a verbal report to them. In effect it was that the part of the mine where the engine was fixed should be stopped, and that the engine should be employed only to draw water from the flat-rod shaft, by means of which a great saving in cost of working would be made. Captain Quintrall thought it would be unwise to stop the mine with such a good thing in sight as the proving of the lode in the 35 west, and recommended driving the next level under, the shaft being down a sufficient depth for that purpose. This point—that is, the lode in the 35—could be reached in two months, according to the estimate of Capt. Quintrall, but Capt. Harris calculated it would take three months.

A SHAREHOLDER asked Capt. Reed what interest he held in the mine?——Capt. REED said at present he held but a small interest, but some of his friends were largely connected with the mine. His means did not admit of his holding a large interest and paying calls, but he proposed to increase his present stake.

Mr. SHARP said that Mr. Lake had referred to the water, as pumped from the mine, containing a valuable oxide, which he considers worth 1*l.* per ton for paint making, and calculated that there were 5 tons per day wasted.

Capt. REED said they had never given attention to this matter, and simply because sometimes the water was almost colourless, while at others it contained large quantities of red oxide—it varied so much, however, that he could not see how any considerable profit could be realised.

Mr. SHARP did not think much value could be attached to Mr. Lake's report, seeing that he had only inspected one tin mine before. He (Mr. Sharp) should have thought that, under these circumstances, Mr. Lake should have respectfully declined the offer. His charge for inspection was 25 guineas, beside expenses.

A SHAREHOLDER presumed that Mr. Lake's report had given satisfaction to some shareholders.——Mr. SHARP said it could only be so to those shareholders who knew nothing of mining.

A SHAREHOLDER asked if any shares had been relinquished since the last meeting?——Mr. SHARP replied that 255 shares had been relinquished, reducing the number now held to 2472 shares.

After some discussion, Capt. Reed undertook to work the mine till the next meeting free of all cost to the shareholders. He believed he could make it pay its own expenses. This resolution was carried *nem. con.*

Upon the proposition of Mr. W. H. SIMPSON, seconded by Mr. MIDGELEY, it was unanimously resolved that Capt. Reed's offer that he will work the mine from this date until the next general meeting without any cost to the shareholders be accepted. Also that immediately after the business of the next general meeting a special meeting be held for the purpose of considering the propriety of winding up the mine or otherwise.

A vote of thanks to the Chairman closed the proceedings.

WHEAL CREBOR MINING COMPANY.

The general meeting of shareholders was held at the company's offices, St. Michael's House, on Thursday,

Mr. HENRY EMANUEL in the chair.

Mr. C. B. PARRY (the secretary) read the notice convening the meeting, and the minutes of the preceding one, which were confirmed. The subjoined report of the agent was then submitted:—

April 7.—I beg to hand you my report for the meeting appointed to be held tomorrow (Thursday). The lode in the 120 end, driving east of Cook's shaft, is 1 ft. wide, composed principally of peach, with a little white iron and spots of lead intermixed, but is of no value. The lode in the stopes in the back of the 120, east of rise, is 3½ ft. wide, worth 20*l.* per fathom. The lode in the stope in the back of same level, west of rise, is 2½ ft. wide, worth 10*l.* per fathom. The lode in the 108 east is still in an unsettled state; at the present time it is 3 ft. wide, yielding a little mundic and occasional stones of copper ore, but is mixed up pretty much with killas. The lode in the 73 east is from 4 to 5 ft. wide: for several months past the lode in this end has very much resembled that in the 108, but in the last fathom or two driving a great change has taken place in its appearance, and it is now a well-defined lode, yielding mundic and stones of copper ore. The driving of this end is for the present suspended. In the 48 east the lode has been large, and at times would yield 6 tons of mundic per fathom and a little saving work for copper ore, but I am pleased to say a great change for the better has taken place during the last two or three weeks. The lode at the present time is 5 ft. wide, composed of quartz, capel, mundic, and yellow copper ore, and is worth for the latter 20*l.* per fathom, a fine-looking lode. This end is going east into new ground, and is whole to surface, a distance of 50 fms. Scarcely anything has been done in the 120 bottom stopes since your last meeting, but we are now making preparations for sinking a winze (which we shall commence in the early part of next week) in the middle of the ore ground gone down in the 120, which will cut out ground for two stopes, and should they prove so good as the stopes have been in the back (of which I see no reason to doubt) it will be of great value to the mine.—JOHN ANDREWS.

The CHAIRMAN said that in connection with the report there was one observation which he would like to make. The 72 east had been discontinued by order of the committee, because it had been ascertained that they were within 4 or 5 fathoms of their boundary. Capt. Goldsworthy and Mr. John Hitchins had led them to believe that they were 40 or 50 fms. from it, but the dialling recently made showed that this was not the case. The ground through which the 72 fm. level east could be continued had been reserved for the Wheal Crebor adventurers, and application had now been made for it. The grant would, no doubt, be made, as it would obviously be to the advantage of the Duke of Bedford that the additional property should be developed, but until they had actually obtained the tack-note it would not be prudent to go nearer the boundary. With regard to the statement of accounts, which he would now ask their secretary to read, he might congratulate them upon their decidedly favourable and improving character.

Mr. PARRY read the statement of accounts, showing a cash balance on March 31 of 256*l.* 10s. 1d. The profit on the three months' working was 305*l.* 8s. 3d., which, added to the balance from last account of 424*l.* 1s. 2d., gave a balance in favour of the mine at the present time of 729*l.* 6s. 5d.

The CHAIRMAN, presuming that the shareholders would like to know what had been done with regard to the new ground which it was proposed to add to the sett, would ask their secretary to inform them what had been done in the matter.

Mr. PARRY explained that on March 11 they received a letter from Mr. Andrews, stating that he had dialled the mine and found that the 72 east was within

4 or 5 fms. of the boundary. On receipt of this letter he wrote, in accordance with the instructions of the committee, to the Duke of Bedford's agents, asking for the grant of the ground which had been reserved for the Wheal Crebor adventurers, and which he had understood from Capt. Goldsworthy and Mr. Hitchins to be about 310 fms. on the lode. Mr. Martin, the Duke's mining agent, wrote that he would report on the extension to the Duke. Since that Mr. Paull, the Duke's chief agent, had communicated with Capt. Andrews, requesting him to go over to the Bedford office to see what it was proposed to grant, and upon Capt. Andrews going over there he found that the grant would include an additional 310 fms. on the lode, which Capt. Andrews considered would afford a fair field of speculation for the company.

The CHAIRMAN remarked that the next business to be brought before the meeting was the appointment of secretary. They were aware that arrangements had been made for the retirement of Mr. Jehu Hitchens, who had been an extremely valuable officer in his time, but was now scarcely active enough for the duties. The committee had appointed Mr. Parry to the office; he would, therefore, propose that the appointment be confirmed, and he did so with much pleasure, as he felt sure that Mr. Parry would give the shareholders satisfaction.

Mr. WARD seconded the appointment, and it was unanimously agreed to.

Mr. PARRY tendered his best thanks to the meeting for the honour they had done him in electing him their secretary, and assured them that he would use his utmost endeavours to merit their confidence.

The CHAIRMAN would just mention that in July last Captain Goldsworthy had sent in a requisition to have his name registered as a shareholder, but as the company were about to commence proceedings against him to recover possession of the cottage on the mine held by him, he had declined to have it registered, as it would have been inconvenient to be engaged in litigation with a partner. He understood that Capt. Goldsworthy intended to give up possession at Midsummer, so that there would then be no objection to register the transfer. In the meantime, it would remain in abeyance, or could be returned to the transferor.

Mr. PARRY stated that on April 7 they had received a letter from Capt. Andrews, stating that owing to not having possession of the cottage he had incurred expenses for rent and taxes amounting to 27*l*. 11s. 2d., and asking for compensation.

The CHAIRMAN said that, without admitting that Capt. Andrews had any claim upon the company, he would propose, seeing that the captain had really been that much out of pocket, that 27*l*. be voted to him, but this was not to be taken as a precedent.——Mr. WARD seconded the proposition, and it was unanimously agreed to.

The CHAIRMAN remarked that as Mr. Jardine's shares had not been transferred he would remain a shadowy sort of committeeman until the next meeting.

Dr. PITT enquired what was to be done with the credit balance?——The CHAIRMAN thought it best to hold it; if their prospects continued good they might soon consider the desirability of declaring 1*l*. per share dividend.

Mr. WARD thought the Cost-book System required the division of costs, and the distribution of profits at each meeting.

Mr. RISLEY quite agreed with the Chairman that it was better to retain a balance in hand.

Mr. KINNEAR scarcely desired the declaration of a dividend, but thought it should go forth to the shareholders who did not happen to be present that they had a balance in hand sufficient to pay a 2s. 6d. dividend. He considered the accounts now presented were the best they had had for a long time.

Mr. RISLEY said they were the best that had ever been presented since the company had been in existence.

Mr. WARD asked when they expected an answer as to the grant?——Mr. PARRY said they were expecting it every day.

Mr. WARD enquired what would be their position if they failed to obtain the grant?——The CHAIRMAN said it would be no worse than at present. They had the 130, which was likely to prove valuable, and there was good ground on the Buckler lode, which was within their boundary, though it had not been worked for years. It was to work this lode that the company was originally started.

A vote of thanks to the Chairman terminated the proceedings.

THE PLANET SILVER MINING COMPANY.

The first ordinary general meeting of shareholders was held at the offices of the company, Moorgate-street, on Tuesday, when, the Secretary having read the notice convening the meeting, the CHAIRMAN (Mr. PETER LE NEVE FOSTER) stated that this was the *pro forma* meeting required by the Joint-Stock Companies Acts to be held within four months of the incorporation of the company. He was happy to say that the company was successfully floated, and that the whole of the capital was subscribed. As the shareholders were aware, there must always be an element of risk in mining; he was himself by no means a sanguine man, but he must say that, after all he had heard from Mr. Teal, who was present, and Mr. Foster in Colorado, he did feel very sanguine that this would prove a satisfactory and profitable undertaking. He might mention that he had received a letter from a solicitor living near the mines, whom he well knew, but who was totally unconnected either with the vendors or the company, stating that everything as to the title of the vendors was in perfect order. The Chairman concluded by moving that the short formal report which he read be received and adopted.

Mr. JORDAN, in seconding the resolution, observed that, not only had the capital been fully subscribed, as stated by the Chairman, but that applications had been received for much more than could be allotted, and some of the applicants were, in consequence, obliged to be content with less than they wished to have had. He thought that it was not often that the shareholders at their first meeting had the opportunity of meeting in the same person the vendor and the gentleman on whom depended, and to whom the shareholders looked for, the realisation of the statements made in the prospectus. This gentleman, Mr. Teal, was present; he had been appointed by the directors as manager at the mines, and would be only too happy to personally answer any questions which any of the shareholders might now like to put to him. He (the speaker) and his partner, Mr. Harvey, as London managers of the company, had had many conversations with Mr. Teal on the subject of the mines, and they were both perfectly satisfied with his statements, as no doubt would be all those now present.——After various questions had been put to and answered by Mr. Teal, the retiring directors were re-elected, and the meeting closed with a vote of thanks to the Chairman.

BLUE HILLS TIN MINING COMPANY.

A general meeting of shareholders was held at the offices, Austinfriars, on Thursday—Mr. CLARKE in the chair.

Mr. HICKEY (the secretary) read the notice convening the meeting, and the minutes of the last were confirmed.

The accounts, made up to Feb. 20, showed a debit balance of 641*l*.; the loss on the three months was 204*l*.

The report was read, as follows:—

April 6.—Since your last general meeting the principal speculative work has been confined to the following points:—During the past twelve months some of the most productive pitches have been found on the south part of the Pink lode—or perhaps more correctly, on what is a distinct lode, formerly called the "straggler," on account of its irregular course in close proximity to the Pink lode. We have, therefore, opened out on it at several points near the Poulyear shaft, and found payable tribute ground at most of the points operated on. This lode is as irregular in its size as it is in its course, in some places it being 2 ft. wide, and at other places scarcely traceable. In the 40, west of the shaft, the lode is at present about 2 ft. wide, but not of much value. The men who were employed here are at present opening out on one of the downright lodes—which have proved very productive in the adjoining mine—in the 50, near its junction with the Pink lode, where it contains a small but good leader of tinstuff. The south part of the Pink lode, in the 50 west, is just now small, although all the ground thus far laid open here is payable tribute ground. On the Wheal Betsy lode the winze below the 13, east of Wheal Joy shaft, is for the present suspended, being down from 7 to 8 fms. below the level; the lode here has been worth 5*l*. to 8*l*. per fathom. A lode indicating better things, but so far scarcely payable at the present low price for tin. The ground above this level, east of the shaft, is all being worked on tribute, and we think the miners are just now earning fair wages on it; for some months past the tributers' earnings have been small, and, as a consequence, the result of the twelve weeks' operations has not been so satisfactory as it would have been had they found sufficient tin to earn fair wages. At present, however, there is a little improvement in this respect. The winter floods have with us so far subsided that the mine can again be easily kept drained by working the engine during the daytime only; this will save many pounds monthly in the cost of coals and labour, and if we could report an advance of only 10*l*. per ton in the price of tin it would be much more satisfactory and encouraging.—S. BENNETTS, A. GRIPE.

The accounts were passed and allowed, and with the report were ordered to be entered on the minutes. A call of 2s. per share was made.

A vote of thanks to the Chairman closed the proceedings.

PENHALLS TIN MINING COMPANY.

A general meeting of shareholders was held at the offices, Austinfriars, on Thursday,—Mr. CLARKE in the chair.

Mr. HICKEY (the secretary) read the notice convening the meeting, and the minutes of the last were confirmed.

The accounts made up to Jan. 23 showed a credit balance of 1126*l*.; the profit on the twelve weeks' working was 414*l*.

The report of the agents was read, as follows:—

April 6.—In the 70 fm. level, west of the engine-shaft, the lode continues from 1½ to 2 ft. wide, of a promising appearance, but not of much value. In the east end at this level it is 3 to 4 ft. wide, of low quality tinstuff throughout, with occasional good stones of tin, and worth about 5*l*. per fathom. In the 60 east the lode itself is only occasionally seen in small sections between the numerous faults at this point. A stope in the back of this level, where the lode is somewhat settled, is worth 12*l*. per fathom. The 50 cross-cut north, towards the north lode, is much the same as for some months past—in easy ground for progress. The 50 west end is in somewhat hard ground, although the lode is opening out satisfactorily, and is at present worth 15*l*. per fathom. A rise above this level is worth 10*l*. per fathom. In the eastern part of the mine, at the same level, on the south section of the lode, three stopes are respectively worth 7*l*., 12*l*., and 40*l*. per fathom. This latter has very much improved during the past six or seven weeks, and at present contains a good bunch of tin. At the 45, east of the Shop shaft, the lode is worth 8*l*. per fathom, and a stope in the back of this level 10*l*. per fathom. The 40 east, on another section of the lode, is worth 6*l*. per fathom. A winze below the 40, in the western part of the mine, is worth 8*l*. per fathom. On the north lode, the 30, east of the flat-rod shaft, is worth 4*l*. per fathom. A winze just commenced below this level is worth 12*l*. per fathom, and a stope in the back of the same level 8*l*. per fm. During the first four of the twelve weeks just passed three of our most productive stopes considerably fell off, which has been the cause of a somewhat less quantity of tin sold than for the previous corresponding period; this, in addition to the heavy fall in the price obtained for tin, has seriously affected the financial result of the 12 weeks' operations. The mine, however, taken as a whole, looks much the same as for some time past, the great want at present being a better price for the produce, so as to encourage more speculation both by adventurers and tributers.—S. BENNETTS, W. HIGGINS.

The CHAIRMAN said that, taking all circumstances into consideration, and that the price realised for the last sale of tin was 4*l*. 10s. per ton less than that of the first parcel sold in the quarter, the result of the twelve weeks' operations must be considered satisfactory, inasmuch as it enabled the committee to recommend a dividend of 2s. per share. Seeing that so few mines in Cornwall were now able to make sufficient returns to meet the costs, and that fewer still were able to pay dividends, he need hardly say that it was with especial satisfaction the committee were in the exceptionally favourable position of being able to recommend a dividend upon the present occasion. As shown by the accounts, the credit balance was 1126*l*., the profit during the quarter having amounted to 438*l*.; the dividend of 2s. per share, as recommended by the committee, would absorb 500*l*., leaving 626*l*. to be carried forward to next account.

Mr. HICKEY explained the prospects presented at the respective points of operation, and mentioned that from the bunch of tin, referred to in the report, a small parcel (about ¼ ton) had been sold in the stone, and realised 25*l*. 10s., which gave the shareholders some idea of the value of the stuff from the lode, where one of the stopes had just improved.

Mr. PYFINCH presumed that some of the workings could scarcely be paying expenses.——Mr. HICKEY said it often happened that a lode would be for some little time worth only 4*l*. to 5*l*. per fathom, and then materially improve in value, and they were bound to work the poor as well as the rich points.

The CHAIRMAN said that with the present prospects of the mine there seemed reason to hope that with an improved price for tin better dividends might be looked for.——The accounts were passed and allowed.

A dividend of 2s. per share was declared.

Messrs. Pike and Son were appointed local pursers in the room of Mr. Newton, resigned.——A vote of thanks to the Chairman closed the proceedings.

PRINCE OF WALES MINING COMPANY.

The general meeting of shareholders was held at the company's offices, St. Michael's House, Cornhill, yesterday,

Mr. J. Y. WATSON in the chair.

Mr. C. B. PARRY (the secretary) read the notice convening the meeting, and the minutes of the preceding one, which were confirmed.

The CHAIRMAN remarked that the accounts to be presented to the meeting were for six months, and they showed a loss of 1262*l*. 7s. 6d., or about 200*l*. per month. The cash in hand is 352*l*. 17s. 6d., against 595*l*. 15s. 9d. due for acceptances given to creditors, and 670*l*. 14s. 2d. owing to merchants, besides. The arrears of calls amount to 477*l*. 11s. 6d., and, taking credit for these, the balance of liabilities over assets is 412*l*. 2s. 6d. The report of the mine is not very satisfactory as regards copper, but there is one part, in reference to the Wheal George arsenical lode, that gives us some hope for the future. Twelve months ago some parties in the neighbourhood took this lode on tribute for a year, at 17s. in 1*l*., and they were to have the arsenical mundic raised at 6d. per unit for all ores of 20 per cent. produce and above, and 5d. per unit for all ores under 20 per cent. At the time this pitch was set arsenic was less than one-third the price that it now brings, and all the advantages of the contract have been with the tributers, who have raised something like 600 tons. At the end of this month, however, the contract ceases, and the company will work it themselves, and, they hope, to a good profit. There is a large tract of this ground that can be worked dry to 30 fms. deep. During the first six months these tributers were laying open ground; during the last six they will have raised at least the 600 tons mentioned, and there should be no difficulty in the way of the company raising 100 tons a month, at a cost of less than 1*l*. per ton. The agents are anxious to have a larger engine erected, so as to explore the ore ground known to be standing at the deep levels, but it is for the shareholders to determine how far this would be prudent in the present state of the finances. The Duchy of Cornwall, on behalf of the Prince of Wales, have consented to reduce the royalty to 1-36th for 12 months from August 2 last. The Duchy further offered to reduce the royalty to 1-72nd for 12 months from August 2, upon condition of certain steps being taken to develope the mine in depth, but as this would involve the erection of an engine at a cost of 1000*l*., which at present they could not undertake, the terms were practically as he had stated—the reduction of the royalty to 1-36th from Aug. 2.

A SHAREHOLDER enquired whether the accounts were charged close up.——The SECRETARY said that they included the last cost paid. The next cost sheet would not be due for a fortnight.

The CHAIRMAN remarked that against the cost coming due in a fortnight there was their last sampling of 70 tons, which had not been credited. In reply to other enquiries, he explained that in October last, when a call should have been made, they were led to believe that they could realise large profits from another source, and left the matter open, but in December they were compelled to convene a meeting to make a call. Their loss since October had been 1200*l*., but as the December call had been credited against that they were at the present moment but 400*l*. in debt.

The agents' report upon the various points of operation was submitted.

The CHAIRMAN remarked that the report showed that there had been no improvement in the copper department, and the mundic lode had been discovered by the tributers. The demand for arsenic was far above the supply, the present price being for refined from 15*l*. to 20*l*. per ton, and for arsenic out of the flues, as obtained at the works near them, about 9*l*. They had let the pitch at a tribute of 6d. per unit, so that they had only had 11s. per ton for 22 per cent. mineral, yet at present prices it was worth 30s. or 40s., whilst it would not cost them more than about 1*l*. per ton, including everything, to get it.

A SHAREHOLDER suggested that as the price of arsenic had run up very rapidly, and was equally liable to a sudden drop, it might be desirable to renew the present contract at so much per unit, so as to ensure at least something, and enquired of Capt. Gifford whether he would undertake to return it at 1*l*. per ton, and what was the value of the silver lode.

Capt. GIFFORD considered it would cost fully 1*l*. per ton to return. As to the silver lode there was no silver in it that he could see, certainly none worth attempting to take out.

A SHAREHOLDER had visited the mine, and noticed a trolly in such bad condition that two men were doing work which, with the trolly in good order, and the rails well laid, could have been done by a boy. The water-wheel also appeared going to ruin. He would like to know how many hands they employed, and how often the captain went underground.

Capt. GIFFORD expected that the rails had slipped a little, which accounted for the trolly getting off the road, and then two men would no doubt be required to get it on again. As to the water-wheel it was easily explained. Ever since last September their pumps had been going 11 strokes per minute, and they could not, therefore, stop the wheel for necessary repairs. They could now do with about three strokes per minute less, and had, therefore, taken the opportunity to commence the repair to the wheel: all the repairs would be done as fast as possible, but they must keep the water out of the mine. They had 46 men employed underground, and 10 boys and girls at surface.

A SHAREHOLDER thought the offer of reduction of dues to 1-72nd made by the duchy was very liberal.

The CHAIRMAN explained that it was the owner of the arsenic works who took the pitch on tribute, and he now offered to renew the bargain, or, if the company determined to work the driving themselves, to purchase the material on contract. As to the rise of mundics generally, he might mention that at Wheal Crebor they had been selling ordinary sulphur mundic at 11s. and 12s. per ton, but had recently got as much as 27s. per ton.

The report and accounts were then unanimously adopted, and a call of 1s. per share was made.

The CHAIRMAN said that in consequence of the retirement of Mr. Jehu Hitchins, they had appointed a new secretary. He would, therefore, move that the appointment of Mr. C. B. Parry as secretary of the company be and is hereby confirmed.

The motion was seconded and unanimously carried.

Mr. POWER moved, and it was unanimously resolved, that the secretary be instructed to take means to get in the calls in arrear without further delay.

Capt. GIFFORD, in reply to an enquiry, said that he thought in the next six months there would not be any loss, but he did not think there would be a profit.

Thanks were then voted to the chairman, and the meeting separated.

GREAT LAXEY MINING COMPANY.

The general meeting of shareholders will be held at the London Tavern on Wednesday, when the following report will be presented:

We have much pleasure in submitting you our half-yearly report for the forthcoming meeting in April next. Our regular fortnightly reports, published in the *Mining Journal*, and other papers, give the shareholders in a condensed form all the principal points connected with the working of the mine. In the present report they will, of course, look for a more detailed account, which we shall give as clearly and concisely as we can.

DEEP MINE.—The 215, south from engine-shaft, has been driven since the last general meeting, but without any very satisfactory results, the lode producing a small quantity of blende with occasional spots of lead. In this level north we have effected a communication with the winze sunk below the 220 north, thus ventilating the bottom of the deep mine very effectively. The lode here is valueless, but as we go northward it will certainly become valuable like the lodes in the levels above. Welsh shaft is being sunk by 12 men below the 220, and is down about 8 fms. in a lode producing blende ore to the amount of 3 tons per fathom for the length (13 ft.) The 220, north from this shaft has been communicated to Nos. 1 and 2 winzes, thus laying open a long and valuable piece of ground. We are laying down tramroad as rapidly as possible. No. 1 stope in roof of this level, south of No. 1 winze, is worth 40*l*., and No. 2 stope, north of No. 1 winze, is worth 50*l*. per fathom. No. 3 stope in back of same level, south from No. 2 winze, is worth 70*l*. per fathom. The lode in the 210 north is not of much value at present, only producing a little lead and blende occasionally; a stope in the back of this level is worth 32*l*. per fathom. In the 200 north the lode continues, so far, unproductive. A stope in back of this level is worth 24*l*. per fathom; No. 2 stope, in the back of same level, is worth 30*l*. per fathom. In the 190 north we have driven a cross-cut east, passing through branches which we think will soon form into one main lode. We are, therefore, driving on to intersect them again northward in advance. No. 1 stope, in roof of this level, is worth from 35*l*. to 40*l*. per fathom; a very valuable lode is gone down in the sole of this level below this point; No. 2 stope, 36*l*. In the 180 north we are driving a cross-cut through the lode easterly, which we find already to to be 6 ft. wide, and not yet cut through, producing stones of lead and blende, and improving as we go east. We expect to find the principal part of the lode against the hanging or east wall, as found in Dumbell's section, south against it. No. 1 stope, in the back of this level is worth 30*l*. per fathom; No. 2 is worth 40*l*.; and No. 3, 35*l*. per fathom. We have only one stope working on a short shoot of ore in roof of this level, which is now almost exhausted. The ground north from this is now being explored without driving this level—that is from 145 to 165. The 145, driving north, is worth 24*l*. per fathom, but we have only a part of the lode; in our desire to push it as fast as possible to Dumbell's, we can scarcely stop to cross-cut for sufficient proof. This will be done when the levels are holed. We have now scarcely any more remarks to which particularly to refer, having opened out the 220, to meet any exhaustion of the upper stopes, we shall now force down Welsh shaft as fast as possible, and open out ground again at the 135, which we have not the slightest doubt will be equally rich as the 220.

DUMBELL'S.—The shaft having been sunk to this level (200) we have extended the ends both north and south. The lode in the north end is worth 45*l* per fathom, and the south end is worth 50*l*. In the 185 north we drove a cross cut east without discovering any lode, we then cut into the west side, where we found the lode larger than the part previously carried and containing spots of ore: we are now continuing the end north on this. The lode in the winze has been poor generally in the upper part, but it has improved, now worth 28*l*. per fathom, and still improving. In the 185 south the lode is worth 30*l*. per fathom; the winze sinking in the bottom of this level is worth 55*l*. per fathom; a stope in the back is worth 90*l*. per fathom. The winze sinking in the bottom of the 170 north has been sunk 13 fms. below, but it has been for the most part poor, the first 4 fms. averaging 20*l*. per fathom; it is now looking better. A stope in the bottom of this level north is worth 20*l*. per fm. The lode in the winze sinking in the bottom of the 170 south has only been producing saving work, but it is improving going down. The lode above this winze in roof of the 170 is worth 60*l*. per fm. No. 2 stope also in roof is worth 50*l*. per fm. In the 155 north the lode is small, and only producing a little jack, but it is again opening out larger; a sink in the bottom is worth 20*l*. per fathom. The winze in the bottom of the 155 south is worth 100*l*. per fathom, with a very good lode in the roof and in the ends of the winze going down for future stoping. In the 140 north we are taking away the remaining part of a shoot of ore, which is worth 20*l*. per fathom. For some time past the lode in this level (125) has been unproductive to value, although containing a little lead and blende ore, but being one of our pioneer levels north, we are very much pleased to say it is worth 20*l*. per fathom, with every prospect of improvement. The lode in this end (110), another of our pioneer levels, we are glad to say is worth about 40*l*. per fathom.

GLEN LEVEL.—This cross-cut has now been extended far enough westerly to intersect the Laxey lode, but the distance being so great between this and the Laxey point of operations that many right-handed heaves may have occurred, thus removing the lode out of its course further west. We, therefore, think it advisable to continue our drivage to prove the matter once for all.

GLEN ROY.—We have nothing encouraging to say about this portion of our workings. In the 25 ore was found in very fair quantities. In deeper levels the lode has been less productive, not so promising in appearance, and generally poor. In the 65, driven north 74 fms. and south 78 fms., the lode contains occasional spots of ore It is quite possible something good may be found if the engine-shaft is sunk deeper and a more settled rock and lode met with. We have carefully considered the matter, and are of opinion that the mine could be worked to much greater advantage by a separate company, quite distinct from Great Laxey.

GENERAL REMARKS.—We are glad to report that our new machinery on the dressing-floors is answering remarkably well, and that our dressing machinery in general is in efficient repair for the treatment of Laxey ores, both as regards classification and otherwise. We continue to dress the stuff so bare, that the waste going to the river is absolutely valueless, and cannot be sent away poorer. Although some of our places are not so valuable at present, yet we have passed through the rich ground, laaving it still standing till the winzes now sinking shall have been holed, to enable us the more advantageously and economically to take it away. Some of these winzes will soon be holed, and having no less than five sinking at the same time, our out-put of stuff has necessarily been somewhat reduced. However, we certainly have a good future before us: meanwhile, everything shall be forced on as rapidly as possible. We may here call attention to the fact of the 145 north from the Deep Mine, going against the 155 south from Dumbell's, both levels being in good ground it is even beyond a doubt that we shall have long and valuable piece of ground at this point. Also looking at the good ground passed through in the 110, and which it is still in, with the lode improving in the 125 below also, we shall doubtless have a good piece of ground here, when properly laid open for stoping. The deeper levels as they advance to the run of ground in which these ends are will also, we believe, be found equally if not more productive. In conclusion, we would venture to say that during the past six months we have been enabled to accomplish many changes for the better, and if allowed we hope to do better still in the future. Underground the mine throughout is in good order and repair, and the machinery at the surface is also in good repair, and all working efficiently. We are clearing the floors of the vast quantities of poor stuff which had been allowed to accumulate there, and the new crushing mills and dressing machinery attached enable us ts treat all our coming stuff, in addition to which we are bringing down a considerable quantity of the toppings, until recently stored upon the dead heap. Reviewing the whole mine we are convinced that it was never in a more satisfactory or thoroughly honest condition than at present. The returns for the past six months speak for themselves, and the present prospects of the mine are most excellent and encouraging for the future.—JOHN CORNISH, F. REDDICLIFFE.

LINARES LEAD MINING COMPANY.

The meeting of shareholders will be held at the offices of the company on Thursday, when the following report will be presented:—

The time has arrived for laying before you a report of the company's operations for the half-year, which terminated on Dec. 31. The profit for that period has amounted to 4133*l*. 18s. 11d., which is considerably more than the profit made during the preceding six months, when the amount was only 1159*l*. 6s. 4d. A larger extraction of ore from the mines and an improved price for the produce are the sources from which this increase of profit has been obtained. The raisings of ore for the two periods compare as follows:—Pozo Ancho Mines—Six months to June 30, 1874, 800 tons 5 cwts.; six months to Dec. 31, 1874, 945 tons.—Quinientos Mine: Six months to June 30, 1874, 694 tons; six months to Dec. 31, 1874, 900 tons. Notwithstanding this improved yield, the reserves of ore in the mines have not been diminished. Considerable progress has been made with the new work in the western part of the old mine. Warne's shaft has reached the 100, and some valuable ore ground has been opened up at that depth. Peill's shaft has been sunk to the 75, and will, in connection with San Francisco shaft, be sunk to a deeper level as soon as possible. At the Quinientos Mine the explorations have likewise been pushed on with great energy, so that every effort has been made to sustain the productive powers of the mine, and it is encouraging to find that the results attained have been so satisfactory. It will be seen by the accompanying report on the smelting operations that the ore has been converted into pig-lead at a reduced cost of 3s. per ton, as compared with the cost of the previous six months. The price of lead was good up to the end of December last, but since then the market has undergone an unfavourable change, and prices have fallen considerably.

The balance standing to the credit of the profit and loss account enables the directors to pay a dividend of 5s. per share, and to place the sum of 888*l*. 18s. 6d. to the credit of the reserved fund. This addition brings up the total of the reserved fund to 3000*l*., the whole of which has been invested in 3 per Cent. Consols. There remains a balance of 676*l*. 11s. 9d. to the credit of the profit and loss account to carry forward to the next half-year. The directors have with great regret to report the death of Mr. William Henderson, who for many years rendered valuable services to this company as a member of the board. Mr. H. D. Abercrombie, duly qualified, has been provisionally elected to fill this vacancy, and a resolution to confirm this appointment will be submitted to the shareholders at this meeting. Mr. Cox, Mr. Judd, and Mr. Henty retire by rotation on the present occasion, and, being eligible, offer themselves for re-election. Mr. F. W. Bigge, duly qualified, offers himself for re-election as auditor. Mr. E. L. Agar, who has been provisionally appointed by the directors in the place of Mr. Abercrombie, offers himself for election as auditor.

THE FORTUNA COMPANY.

The meeting of shareholders will be held at the offices of the company, on Thursday, when the following report will be presented:—

The directors have now the pleasure of presenting their usual half-yearly report on the affairs of the company, and they are pleased to state that the account they have to render is of a satisfactory character. The mines have opened out well, the cost of working has been moderate, and the smelting has been attended with favourable results. The profit has reached the sum of 10,060*l*. 8s. 9d.; add to this 7239*l*. 17s. 6d., the result of the first half of the year, and the 12 months' profit shows a total of 17,300*l*. 6s. 3d. The quantity of ore raised during the six months has been 2334 tons; this extraction has been obtained without trenching on the reserves. The latter are estimated at 7550 tons, which is the same quantity as they were estimated at in September last. The mining cost has been less than that of the previous six months by 1932*l*. 14s. 4d. Notwithstanding this reduction, it will be seen by the report of the superintendent and mining agents that a very vigorous prosecution of the works of trial has been carried out. The mines are furnished with excellent machinery. All expenditure under this head continues to be charged to the revenue account. The details of the smelting results are given in Mr. Tonkin's report, which shows no material change from the report of the previous half-year. The rate of carriage from the mines to Seville—the port from which the bulk of the company's produce is shipped—has continued at 1*l*. 7s. 2d. per ton, and there does not seem to be much prospect at present of a reduction on this rate.

The balance standing to the credit of the profit and loss account is 10,976*l*. 11s. 11d. Out of this the directors have declared a dividend of 7s. 6d. per share, payable on the 10th inst., 9375*l*.; applied to reserved fund, 1000*l*.; total, 10,375*l*. Carrying forward to next account, 601*l*. 11s. 11d. The reserved fund now amounts to 4500*l*. The directors who retire from office at this meeting are Mr. W. Cox, Mr. H. D. Abercrombie, and Mr. R. Taylor. They are all eligible, and offer themselves for re-election. Two auditors will also have to be elected at this meeting, and the retiring auditors, Mr. J. T. Dorington and Mr. E. J. Bunny, being eligible, offer themselves for re-election.

THE ALAMILLOS COMPANY.

The meeting of shareholders will be held at the offices of the company on Thursday, when the following report will be presented:—

The result of the company's mining and smelting operations which have been carried on during the past half-year are fully set forth in the reports and accounts annexed. It will be seen that the profit for that period has amounted to the sum of 4232*l*. 11s. 9d., which is an increase of 1554*l*. 9s. 1d. over the profit for the previous half-year. The raisings of lead ore for the last six months have been slightly less than during the six months to June 30 last, but a reduction has been made in the mines' costs. In the report of the superintendent and mining agents it is stated that "great attention has been paid to the prosecution of extensive exploratory works." The report goes on to explain that the sinking of four shafts has been carried on during the year, in addition to the driving of many levels and cross-cuts. By these explorations the productive power of the mines has been sustained, and the agents, on a re-valuation of the discovered ore ground, find that there are still 2500 tons of ore in reserve. The smelting of the ores has been conducted at Cordova with the usual satisfactory results. The assay of the ores treated was scarcely equal to that of the previous six months, and hence the percentage of produce was somewhat lower; but the cost of smelting was reduced by 4s. 3d. per ton of ore. The rates of carriage and freight have been without alteration since the last general meeting. The conveyance of the lead to the seaports has been carried on without any interruption. The market for pig-lead was good during the six months from June to December; however, the price has since declined, and the market is still

depreciated. The profit and loss account exhibits a balance of 5386*l.* 9s. 4d. Out of this the directors have declared a dividend of 2s. per share, payable on the 10th inst., of 3500*l.*; carried to the reserve fund, 500*l.*; total, 4000*l.* Leaving a balance to carry forward of 1386*l.* 9s. 4d. The reserve fund now amounts to 3000*l.*, of which 2500*l.* has been invested in 3 per Cent. Consols. Since the last general meeting the directors have lost one of their colleagues—Mr. William Henderson—by death. Mr. Henderson was one of the original directors of the company, and for many years rendered valuable services to the company. The directors have provisionally filled the vacancy thus caused by the appointment of Mr. F. W. Bigge, one of the auditors of the company. This appointment will be submitted to the shareholders for confirmation. Mr. Peill and Mr. Abercrombie are the directors who retire by rotation at this meeting; they are both eligible, and offer themselves for re-election. Mr. E. J. Bunny offers himself for re-election as auditor; and Mr. William Carter, duly qualified, has been provisionally appointed by the board to fill the vacancy in the auditorship caused by the election of Mr. Bigge to a seat at the board, and this appointment will also be submitted to the shareholders for confirmation.

[For remainder of Meetings see to-day's Journal.]

FOREIGN MINING AND METALLURGY.

At the recent periodical sale of copper by the Dutch Society of Commerce, Banca brought 52½ fl. to 52⅞ fl., the average being 52⅝ fl., while Billiton realised 51¼ fl. Some few outside transactions have taken place since at the prices of the sale. At Paris, Chilian copper in bars, delivered at Havre, has brought 88*l.*; ditto ordinary descriptions, 83*l.* 8s.; ditto in ingots, 88*l.*; English tough cake, 88*l.*; and pure Corocoro minerals, 85*l.* per ton. Banca tin, delivered at Havre or Paris, has realised at Marseilles 98*l.*; Straits, delivered at Havre or Paris, 94*l.*; and English, delivered at Havre or Rouen, 94*l.* per ton. At Rotterdam, Banca tin has brought 52 fl. to 52½ fl.; and Billiton, 51 fl. French lead, delivered at Paris, has realised 21*l.* 12s.; Spanish ditto, delivered at Havre, 21*l.* 16s. per ton; English, delivered at Havre, 21*l.* 4s. per ton; and Belgian and German, delivered at Paris, 21*l.* 16s. per ton. Stolberg lead is quoted at Rotterdam at 12⅝ fl.; Spanish, at 12½ fl.; and German of various marks, at 12½ fl. The quotation for Silesian zinc, delivered at Havre, has been 24*l.* 12s.; ditto for other good marks, delivered at Havre, 24*l.* 4s.; and ditto, delivered at Paris, 24*l.* 8s. per ton. Rolled Vieille Montagne zinc has realised 30*l.* per ton at Paris, with a discount of 3 per cent. The Amsterdam quotation for Silesian zinc has been 13 fl. to 13¼ fl.

The state of the Belgian iron trade can scarcely be said to have improved. Orders remain scarce as well on home as on foreign account, and the stagnation prevailing weighs heavily upon the market. Refining pig brings 3*l.* to 3*l.* 4s. per ton. Rails are quoted at 7*l.* to 7*l.* 8s. per ton; this price is still too high to enable a competition to be advantageously sustained with the English in export transactions. Steel rails are dealt in at 10*l.* to 10*l.* 8s. per ton; merchants' iron is quoted at 8*l.* to 10*l.* per ton; and ordinary plates at 10*l.* 8s. to 12*l.* per ton. It appears that in February Belgium imported 59,773 tons of minerals, 9419 tons of rough pig, and 727 tons of miscellaneous iron of various descriptions. The exports from Belgium in February comprised 14,019 tons of minerals, 977 tons of pig, 7328 tons of rails, 1187 tons of plates, and 6585 tons of merchants' iron. Deducting pig, the aggregate exports of iron from Belgium were 16,853 tons. This total shows a decrease of about 3700 tons, as compared with February, 1874, rails figuring in the decreases for 1000 tons. The Belgian workshops for building locomotives and railway plant remain in the most painful position; some orders have, however, been received for carriages for tramways for Marseilles, Lille, and Antwerp.

It appears from official returns that the imports of coal into Belgium in January and February this year presented an increase of 45,497 tons as compared with the corresponding period of 1874, and of 42,893 tons as compared with the corresponding period of 1873, the totals being 106,769 tons, 61,272 tons, and 63,876 tons respectively. The imports of February alone were 49,400 tons, as compared with 22,180 tons in February, 1874. While foreign coal is thus arriving more freely in Belgium, the exports of Belgian coal from Belgium are diminishing. January and February this year exhibited in this respect a diminution of 130,542 tons as compared with the corresponding period of 1874. The total exports of coal from Belgium in February were 248,175 tons, while those of coke were 53,176 tons. If we add to these figures the deficit in the consumption occasioned by the stagnation of metallurgical industry, it will be readily understood how it is that certain colliery owners have decided on reducing their production in order to prevent a too rapid fall in prices. After all, it is the demand which rules the Belgian coal trade; all fictitious combinations must fail. Some Belgian collieries appear to be still realising good profits, others are earning less, while some are working at a positive loss. Under these circumstances, coalowners are beginning to talk more and more of the necessity of a further general reduction in wages.

Although the past year has been an unsatisfactory one to almost all the great branches of industry, it would appear from the statistics that the development of the Bohemian Crown coal fields shows very satisfactory results. This coal, which is found in the north-west of Bohemia, surpasses in value all the coal districts of the Austro-Hungarian kingdom, and it will certainly attain greater importance this year, as the railway from Pilsen to Elsenstein is nearly completed.

New silver and iron mines have been discovered in the neighbourhood of Batoum, on the Asiatic coast of the Black Sea, but sufficient is not yet known of them to enable an opinion to be formed of their value. The working of the copper mines of Kuré, near Castamouni, which had been abandoned by the Turkish Government, is about to be resumed.

There has been very little fresh to report with respect to the French coal trade. The demand for domestic qualities of coal has become almost *nil*, and heavy orders for industrial coal are as rare as ever. The general attitude of French coalowners has been little favourable to the development of business; they have in some instances attempted an advance in quotations, while the general tendency has been notoriously downwards. From the Pas de Calais there has been no intelligence of any serious importance, but there has been a certain tendency to mining speculation, which is regreted by sensible people. There has been nothing interesting to report from St. Etienne.

The aspect of the French iron trade has been heavy. The situation has been characterised by two unfavourable circumstances—an increase in the imports and a diminution in the exports. It appears from an official return that in the first two months of 1875 the exports were 6000 tons, or 19 per cent., while the exports increased 10,000 tons, or about 50 per cent. The purchases of foreign steel by France have tripled this year; they amounted to 3008 tons; this is, of course, an unsatisfactory circumstance for French steel manufacturers, the fabrication of which has been much improved of late years. The receipts of iron and pig have shown a notable decrease at Paris, having been 485 tons less in the first two months of this year than in the corresponding period of 1874. There is some reason to hope that great works which are in progress will restore a certain activity to the market. There has been a slight advance in iron at Paris, notwithstanding the diminution in the receipts; merchants' iron has been quoted at about 9*l.* 4s. per ton. Construction plates have ranged between 11*l.* 12s. and 16*l.* per ton. The revival in affairs has not become more decided in the Haute-Marne; the orders received being scarcely sufficient to maintain the production at its ordinary level. Charcoal-made pig for refining has brought 4*l.* 12s. to 5*l.* per ton; mixed pig (half coke-made), 4*l.* to 4*l.* 4s. per ton; rough axles, 11*l.* 12s. to 12*l.* per ton; finished ditto, 16*l.* 4s. to 16*l.* 8s. per ton; and special iron, first-class, 8*l.* 16s. to 9*l.* per ton. The demand for plates at St. Dizier is considered to be showing rather more activity. An improvement is also expected to be established in the position of the mechanical construction workshops. In the Ardennes group affairs have remained very much in *statu quo*. Charcoal-made pig, ordinary quality, has brought 4*l.* 12s. per ton; rolled coke-made iron, 8*l.* 12s. to 9*l.* per ton, according to the works, and according to the markets; and English plate for construction purposes, 11*l.* 4s. to 11*l.* 8s. per ton. There have been comparatively few transactions in the Meurthe-et-Moselle; quotations for refining pig have fluctuated between 3*l.* and 3*l.* 2s. per ton, in consequence of concessions, which have had the effect of bringing orders forward. There has been a partial improvement in the Rhone district; ordinary first-class iron has brought 8*l.* 16s. per ton in this group, with a scale of 8s. per ton per class.

GAS IN PARIS.

The Parisian Company for Lighting and Heating by Gas, which has for some years obtained a portion of its coal supplies from the Ruhr (Germany) Basin, has just reported progress for 1874, and very encouraging progress it is. The consumption of the company's gas would appear to be continually extending. In 1855, this consumption amounted to 40,774,000 cubic metres; in 1860, it advanced to 75,518,922 cubic metres; and in 1865, to 116,171,727 cubic metres. During the ten years ending with 1874 the consumption has moved on as follows:—

Year.	Cubic metres.	Year.	Cubic metres.
1865	116,171,727	1870	114,476,909
1866	122,334,605	1871	87,481,346
1867	136,569,762	1872	147,668,331
1868	138,797,811	1873	154,397,118
1869	145,199,424	1874	160,652,202

The Franco-German war, the siege of Paris, and the Communist insurrection checked the consumption very materially in 1870 and 1871; but it will be seen that in the three subsequent years there has been a rapid recovery, until now the consumption is considerably in excess of the level which it attained during the last year of the Second Empire. The company has been obliged to considerably extend the productive capacity of its works, and has now carried it to 185,000,000 cubic metres per annum. There seems little doubt that even this materially extended capacity will have to be further advanced as years roll on. Last year the new canalisations carried out by the company were of no very great importance, but still some additions were made to the network of subterranean pipes owned by the company. This network now comprises altogether 1017¼ miles of pipes, of which 405 miles lie under old Paris. The use of gas engines—which the Council of Administration consider to have solved the problem of distributing motive power at a cheap rate—has not been extended so rapidly as had been hoped and expected. The company, however, sold last year 12 horizontal engines on the Lenoir system, and 25 vertical engines on the Otto and Langen system. These latter engines, which do not require the employment of electricity, are stated to be appreciated by the public, and they appear calculated to render some service to Parisian industry. At the close of last year it was computed that there were 177 gas engines in Paris; the annual consumption of these engines is estimated at 650,000 cubic metres. The amount collected by the company from the sale of gas last year was 1,599,732*l.*, or 76,472*l.* more than in 1873. The greater part of the revenue collected last year accrued in old Paris. The number of the company's subscribers for gas stood at the close of 1874 at 104,679, or 5014 more than at the close of 1873. Since 1869 the number of subscribers has increased to the extent of 18,138, or 21 per cent. The number of public gas lamps lighted by the company is steadily increasing; it amounted at the close of 1874 to 38,498, or 1925 more than at the close of 1873. The expenditure made by the company upon capital account in the course of last year was 159,361*l.*, and to meet the cost of further works, which will have to be carried out between 1874 and 1880 the Council of Administration has been authorised to issue obligations or small bonds of the company to the extent of 1,008,000*l.*

The company must certainly be said to be a prosperous monopoly, since the balance available for dividend upon its shares for last year was no less than 754,332*l.* Out of this balance the shareholders receive a dividend of 2*l.* 4s. per share, 10*l.* paid-up, the corresponding dividend for 1873 having been 2*l.* 2s. per share. It will be seen, accordingly, that the return realised by the proprietors last year upon their nominal capital was at the rate of 11 per cent. per annum. The company, as we have just observed, is a prosperous monopoly, but it should be added that it has to share with the municipality of Paris all profits in excess of 496,000*l.* per annum, so that the monopoly, although prosperous, is a little curtailed, and held in check. The price of the coal consumed by the company remained very high last year; it exhibited, however, as the year advanced a slightly downward tendency. The company obtained some compensation, however, for the high price of coal last year in the fact that the coke produced in its works commanded a better quotation, in consequence of the exaggerated quotations current for coal. The company has experienced some difficulty in obtaining the execution of several coal contracts concluded before the Franco-German war upon advantageous conditions, but friendly arrangements which have been carried out have terminated these temporary difficulties. The amount derived from the sale of coke, which was 468,525*l.* in 1873, rose in 1874 to 509,794*l.* In the course of last year the company sold 2046 apparatus for heating with coke, making the whole number disposed of 38,098. These apparatus, which the company sells at as low rates as possible, assist in extending the use of coke for domestic purposes. Every department of the company's operations appears to be characterised by care and judgment.

THE AMERICAN COAL TRADE.

The progress of coal mining industry throughout the world, being a subject which is of importance to all branches of trade and commerce and to all countries, such volumes as that of Mr. FREDERICK E. SAWARD* are almost invaluable, as showing where industrials are to look for fuel at lowest rates abroad, and what are the prospects of increasing production in other countries, tending to lower prices at home by lessening the demand for export. During the past year, he remarks, the production of coal in America and Great Britain has been much reduced, owing to the stagnation of the various branches of the iron trade, occasioned by the financial panic in America in September, 1873. It is not improbable that the decrease in the output in the United States for 1874 exceeded 4,000,000 tons of all qualtities. The price of anthracite has been much increased during the year, owing to the very complete control of this branch of the business by the large railway and mining companies. Bituminous ruled much lower in price in all the markets, caused by the reduced demand from railways, steamships, and manufacturing enterprises generally. The United States now rank second only to Great Britain as a coal-producing country, the annual output now considerably exceeding 50,000,000 tons. In 1873 the supply was thus derived:—

	Tons.		Tons.
Pennsylvania, anthra. ...	22,828,178	Pacific Coast, lignite	500,000
Ditto bitum.	11,695,382	Tennessee	400,000
Ohio	3,944,340	Kentucky	400,000
Illinois	3,500,000	Iowa	350,000
Maryland (Cumberl.). ...	2,674,100	Virginia (Richmond)	60,000
Indiana	1,500,000	Alabama	60,000
Missouri	1,000.000	Michigan	50,000
West Virginia	1,000,000	Kansas	50,000
Col., Wyom., Utah, lign...	500,000		

The statistics for the several States and districts are carefully given, showing the number of collieries, horse-power of steam-engines, number of hands employed, capital embarked, wages paid, cost of materials, and the product in U.S. standard tons of 2240 lbs. It is very much to be regretted that in a pamphlet likely to be so extensively circulated as this it is proposed that no attention should be paid to the "standard of weights and measures" which the Constitution of the United States provides, and that the ton of 17 cwts. 3 qrs. 12 lbs. should be adopted as a substitute. In Great Britain consumers would object to being given 10 or 12 per cent. short weight, and that the 2000-lb. ton has been adopted as largely as it has in America is probably due to the fact that the Americans have laboured under the same delusion as the Yorkshire lady who declined to give 22*l.* for a horse but accepted it as a bargain at 21 guineas.

If Mr. Saward really desires to facilitate comparison, and as he admits that the system of weights and measures at present used in the United States is disorganised and sectional, he would have displayed much more wisdom in advocating the adoption of the metric system at once, which has been proved by the experience of nearly a century to be superior to any other, and has even been adopted in effect throughout the German empire, the "zollpfund" being exactly half a kilogram, and the "tonne" exactly 1000 kilos. In the increasing dealings between civilised countries the desirability of uniformity of weights and measures is beyond question, and as the Americans have already a decimal system of coinage, their neglect to adopt the metric system says little for their sharpness and love of progress. Moreover, as the U.S. standard ton is but 15 kilograms heavier than the German or metric ton, its adoption would involve no inconvenience. It may be hoped that from future editions of his pamphlet the antiquarian notions will be eliminated. That the information given may be thoroughly intelligible Mr. Saward has given carefully executed maps of coal regions and geological sections, and has a very interesting graphic representation of the expansion of the coal trade during the past half-century.

That Mr. Saward's compendium contains facts worthy of preservation for future reference cannot be doubted, and from the admirable manner in which they are put together much present interest attaches to them. It should be mentioned, too, that it is not alone the United States coal trade which is treated of, but that of the various coal-producing countries of the world, so that the utility of the work will be appreciated everywhere, and the future annual editions will be looked forward to with much pleasure.

* "The Coal Trade; a Compendium of Valuable Information relative to Coal Production, Prices, Transportation, &c., at Home and Abroad, with many facts worthy of preservation for future reference." By FREDERICK E. SAWARD, Editor of the "Coal Trade Journal." New York: The Author, Nassau street.

FOREIGN MINES.

ST. JOHN DEL REY.—Telegram from Morro Velho, dated Rio de Janeiro, April 6: Produce 11 days (second division) of March, 15,000 oits.—5812*l.*; yield, 10·2 oits. per ton. General work in mine and on surface going on well, and satisfactory duty being accomplished.

DON PEDRO.—Feb. 23: The ore returned has been of a very fair standard, and derived from Nos. 6 and 8 shoots; the boxwork obtained has been taken from No. 8 shoot. Operations generally throughout the mine have progressed favourably, the 35 cross-cut is still yielding very fair general work. The water being drawn from the mine amounts to 20 cubic feet per minute. No change has taken place to notice in any of the stopes, but a few boxes of good boxwork, which has been obtained from the southern line in No. 8 shoot above the 30.—Explorations: The last few fathoms that were driven in the adit level eastward were not timbered, so we have been obliged to stop driving the end until we can secure the level with timber, and we hope the timber work will be completed in a few days. There is one native employed rising a vertical rise in the back of the 25 from No. 6 shoot to prove the underlie lode.

— Feb. 27: Produce (already advised by telegram) weighed up to March 1 7595 oits.; estimate for the month (February) 9200 oits. The ore returned has been obtained from Nos. 6 and 8 shoots; no boxwork has been available for the week. The works in hand have progressed with usual regularity, but the force is still inadequate to our requirements. The 35 cross-cut is still yielding very good general work, the lode is much harder than it was above; we hope to finish the chamber or plat at the 35 in the coming week. The water being drawn from the mine amounts to 20 cubic feet per minute. Stoping throughout has been continued as usual. We regret that the explorations have been almost under suspension from want of force. We have not met with the underlie lode as yet in the rise rising above the 25 in No. 6; we have taken several samples, but they do not show any gold. We have not done anything in the adit level for the week for want of force.

— Telegram from Rio, dated April 6: Produce cleaned up (on account of March), 7700 oits.; estimated total for the month (March), 9600 oits.

RICHMOND CONSOLIDATED.—Cablegram from the mine at Eureka, Nevada:—Hall, London.—Week's run, $43,000.

CHONTALES.—Telegram from the manager, in anticipation of the mail due on the 14th inst.:—I have sent by last mail gold weighing 286 ozs.; estimated value, 763*l.*; loss, 72*l.*

ALMADA AND TIRITO.—Telegram from Mr. Clemes:—Palmerston loading, remitting $15,000 to London. Profit for February, $12,379. The profits telegraphed for the last four months amount to $49,148.

CHICAGO (Silver).—Telegram from the company's superintendent at the mine:—Remitted net profits for the last month, $7000.

MINERAL HILL.—Mr. Oakes, the superintendent at the mines, writes (March 15):—There is no change to notice in the mines. The ore raised during the past week is 60 tons, of an average grade of $45 per ton.

CEDAR CREEK GOLD MINES AND WATER.—T. B. Ludlum, March 7: I am pleased to report that we have been having a snowstorm, and are all hopeful that it will continue for some days. If we have a heavy fall of snow in the mountains at this time, this will undoubtedly prove to be one of our best water seasons. We have had favourable weather in which to do our dead work, and all the claims that we are running are now ready for making money. The Yankee we cleaned up on the 1st inst., but I am not yet in receipt of the mint returns. Estimating the bullion at the same rate as former shipments, it will amount to about $5000, which is very satisfactory considering the short run and many difficulties under which we were forced to work. The Pacific, Central, and Jehoshaphat are washing. Owing to the great number of heavy boulders, the latter claim is making but slow progress; everything, however, is being done that is possible. The water in our ditches is holding up well; we still have about 1700 inches.

— March 13: I last had this pleasure on the 7th inst. Since then the weather has been clear and warm. The snow on the mountains has been melting, raising the water in our ditches, so that we now have about 1900 inches running. The weather to-day, however, is bleak and cold, threatening a storm. The Pacific claim is now running regularly day and night, only turning off to move up the giants or to extend the sluices. We shall make our first clean-up in about ten days. The Central claim is also washing continuously. We have cleaned up in this claim twice this season, producing $6609·21, at an expense of $3900·62, leaving a profit of $3408·59. The Clay tunnel works well, and conveys all the tailings from the Central into the Jehoshaphat claim, through which they pass to Dutch Flat canyon. The Jehoshaphat is washing, or, I should write, working, for we can wash but a portion of the time, owing to the nest of large boulders which we are obliged to pass. I have reasons to hope that we are now nearly through them, after which we may expect clear sailing and easier work. The tailings from the Central aid materially in washing off the heavy cobbles. The Yankee claim, as mentioned in a former letter, we cleaned up on the 1st inst., but not until yesterday morning were we enabled to resume washing. I took advantake of the water being off to make the connections on the second string of pipe; it will be three days yet, however, before we shall be using both giants, as it will take nearly that time to pipe an opening from the old Why Not cut into what was formerly the old Palm cut, through which to lead the pipe. In order to furnish water sufficient to supply the two strings, I was obliged to extend our main supply pipe about 250 ft. in length. The policy of having a larger head of water passing through our nozzles does not admit of an argument, but was an actual necessity. We could not remove the boulders fast enough with the head we were using, and I should have started another giant long since but for the fact that we did not have room to work, our pit being too narrow. Some time ago I reported that the claim was opened, and that I intended to take the full width of the pit, and advance across the channel; hardly had my word gone forth when the immense clay and rock slide commenced crawling down, driving us back, and detaining us two months at comparatively dead work, for the clay contains no gold. I found it impracticable to attempt an advance without first widening the cut still more, consequently the last run was made on the rim, as will also be the end just commenced, at the expiration of which we will have the pit widened, so as to extend north as far as the south-westerly line of the Why Not claim, and as far back into the hill as the drifted ground, thus having room for more advantageous working. I then propose to advance across the old pay channel. It should be borne in mind that up to the present time we have not been able to wash the gravel overlying the ancient pay channel, but have by force of circumstances been confined to that portion lying on the rim, and extending back some 175 ft., which was too hard and poor for the former owners to drift out.

NORTH AMERICA (Gold).—D. W. C. Morgan, March 11: The storm which set in on the 2nd inst. went out on the 8th; it left a little more snow on the ground. The water has been too short in supply to permit any washing until last night, when we got two reservoirs. I do not expect much water now until the snow begins to melt, as it is too late to look for rain. The body of snow on the watershed above the ditches is not a heavy one, but should no more rain fall I think the water season will be an average one. The output last week was 2076 loads. Owing to the severity of the storms on the 2nd and 3rd inst. a part of the Chinese force did not work. I am making every possible effort to increase the number of Chinese, and all the whites that offer are being put on. During the water season all the gravel will be taken out if hands can be had to extract. The breasts on both the north and south sides in new ground are working well. We have somewhat narrowed operations on the south side. The Nos. 2 and 3 subdrifts north are both in good gravel. The former, No. 2, has been got in 350 ft., and the latter, No. 3, 250 ft. Good prospects are obtained from the gravel in both. The amount of gravel taken out, commencing with the current month, and ending when water fails, will depend upon the number of hands we can get. I feel quite certain of 40,000 loads, and if we have abundant help I should expect to get from 5000 to 10,000 loads more.

Good white hands are more abundant than they were two years ago, and the large amount of ditch and railroad building going on in the State will employ a large number of Chinese. Such work is less laborious than ours, and preferred by that class. The ground on the north side of the tunnel is opening out well, and if it yields as well as it looks the earnings will be very satisfactory. It would be useless to say how much it will pay; but judging from prospecting done, I think it safe to put the estimate of yield at between $1·50 to $2 per load. It may be some little time before water for extensive washing will be at hand, but very soon thereafter I shall be able to advise you of some profit.

— March 15: The weather continues cold. There is but little water running in the ditch as yet, and not much more can be expected until the weather moderates. Work in the mine progresses well; the output last week was 2435 loads of gravel. The sub-drifts, Nos. 2 and 3 north, were advanced 36 ft. each; the gravel passed through looks well in both; we have not yet been able to test it. At present there are three breasts working in the low depression in the rock on the north side, and the same are below the track in the drifts from 3 to 5 ft.; it is more difficult to extract this ground than it will be further on, where the rock is level with the track. I have not been able yet to increase the Chinese breasting force, but expect to do so very soon. Everything about the mine is working smoothly, and as soon as water for washing is at hand I shall be able to speak definitely as to the quality of the gravel.

MENZENBERG.—R. K. Roskilley, April 6: We set on Friday last the following contracts:—The 45 to drive west of cross-cut, to six men, at 75 marcs, or 3*l.* 15s., per lachter—6 ft. 10½ in. The lode here is very large, composed principally of quartz, with stones of copper ore—a promising looking lode. This level is west of cross-cut 16½ fms., and the same has been driven during the past month 5 fms. We are proceeding with the driving of this level with all dispatch, in order to intersect the main lodes—north and south—which are still in advance of our present end. To rise in back of this level (the 45) by one man, at 15s. per lachter; this rise is up from the back of the level 1½ fm. The lode is 2 ft. wide, producing some fine black oxide of copper and green carbonate.

[For remainder of Foreign Mines, see to-day's Journal.]

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MANUFACTURE OF COKE.—Messrs. PENROSE and RICHARDS, of Swansea, have patented an improvement which relates to the production of coke, and consists in the mixing or incorporating of anthracite or stone coal, or free burning steam coal, or coal known as Staffordshire slack, or other non-coking coals (with bituminous coal, or any other coal capable of making coke), together with pitch or tar, or with any form of tar or bitumen, mineral oils containing bitumen, petroleum, or any of the waste products of petroleum, such coal or coals, pitch, tar, or other bituminous matters being ground or mixed together, as after mentioned. The mixture thus produced is to be placed in any well-known form of oven or retort commonly used for coking, and the surface is then to be covered with a layer of bituminous coal, or other bituminous matter. In carrying out the invention they cause the coals, and pitch, tar, or other bituminous matters to be ground, granulated, disintegrated, or pulverised, and thoroughly admixed simultaneously, by means of any well-known disintegrator, such, for example, as the machine known as Carr's disintegrator, or by any other suitable grinding and incorporating apparatus. Or each article of a solid character may be ground, granulated, disintegrated, or pulverised separately, and the several component parts necessary for the production of coke afterwards admixed by means of Carr's disintegrator, or any other suitable incorporating apparatus. When such admixture, or incorporation, has been effected the materials thus mixed, either with or without a sufficient quantity of water to moisten the same, are to be introduced into a convenient retort, or any of the well-known forms of coking ovens, for the purpose of being converted into coke, and when placed in such oven or retort are to be covered with a layer of bituminous coals or matter, bituminous coal being preferred, or in lieu of such layer a sufficient quantity of coal or bituminous matter may be placed in the oven, so as to ensure the early ignition and proper working of the charge. The proportions in which the coals or mixtures of the same are to be employed, together with one or more of the before-mentioned materials, will vary according to the quality of the coals and the nature of the bituminous matter employed. They have found that good results may be obtained by employing from about 60 parts by weight of anthracite or stone coal of average good quality to about 34 parts by weight of bituminous or coking coal, and to about 6 parts by weight of pitch or ordinary coal tar. The layer of bituminous coal employed may vary from about 2 to 6 in. in depth, but, as before mentioned, these proportions and layers may be varied.

ROCK-DRILLING.—Mr. W. WALKER, of Saltburn-by-the-Sea, has patented an invention according to which a revolving rock-drill is driven by small compressed air-engines mounted in a trough-shaped framing, so that the rock-drill and engines can be made to advance and recede in the framing to and from the face of the rock. The trough-shaped framing has a trunnion, by which it is mounted in a collar on the end of an articulated arm having several joints, by which the rock-drill can be brought into any desired position for drilling holes. This arm slides vertically upon a pillar, and is carried by a plate on which the arm is secured in any desired position, and which can be raised or lowered by means of two vertical screw spindles carried in standards on each side of the said pillar; the screw spindles are rotated by means of bevil gear at the top of the standards, worked by an endless chain passing over chain-wheels, one of which is carried at the side of one of the standards, and is rotated by a winch handle. The pillar and side standards are fixed upon a platform arranged to slide on a tramway carriage by means of a screw. Inside the pillar is a screw spindle, which can be raised by means of a nut at the top of the pillar, to as to abut against the roof of the mine, and thus hold the machine firmly in position while at work.

BOILERS.—Messrs. MARRIOTT and GRAHAM, of Govan, has patented a new or improved mode of forming vertical domed main shell and fire-box boilers, all of a solid welded construction, many parts of which have heretore been so formed. The cylindrical part of the outer shell is first formed (of one or more plates according to size) with the furnace door and sludge holes cut in it, and welded at their vertical end edges, the upper edge all round being then by these improvements welded to the outer circumferential edge of the upper domed end (first formed, as usual, out of one plate or two plates welded across the centre, with a hole in it for being welded to the central flue of the fir -box) not quite shaped, but left so as to be able to strike and manipulnte this weld, and then at the same time complete its dome shape. The upper crown or domed plate of the fire-box is in like manner by these improvements welded to the upper edge of its shell, and then finished to the round or dome, and the corner welded, all after its shell has been made and welded in an ordinary manner with the tubes welded in, and the edge of fuel door and lower rim flange bent out and formed for welding to the outer shell, and the lower end of the central flue has been welded into the hole in the middle of the crown of the fire-box; which, thus completed, is inserted into its place in the outer shell bf the boiler, and welded all round at the lower edge and flange and at the lip and edge of the furnace door, and at the upper end of the central flue and edge of the hole in the centre of the crown made for it, thus completing the whole shell of the boiler and fire-box of this form of boiler exposed to the heated fluids, in a solid welded form ready for the simple attachment of the chimney above the central flue and the shell of the ash space below in any usual manner.

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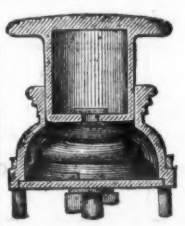

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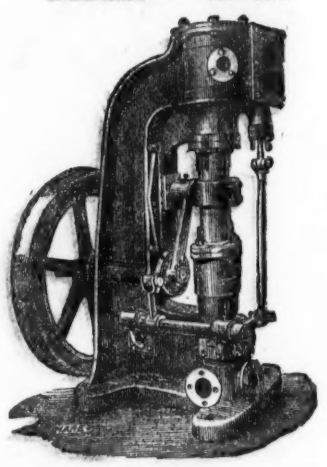

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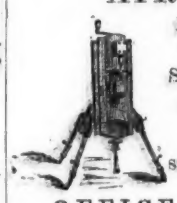

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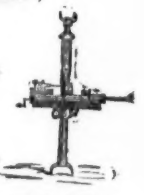

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This wheel (which is now largely in use in England, Scotland, and Ireland) is the only one yet invented which gives proportionate power from both large and small quantities of water. It can be made for using a large winter supply, and yet work with equal efficiency through all variations of quantity down to a fifth, or even less if required. It is easily coupled to a steam-engine, and, in this way, always assists it by whatever amount of power the water is capable of giving, and, therefore, saves so much fuel.
This Turbine is applicable to all heights of fall. It works immersed in the tail-water, so that no part of the fall is lost, and the motion of the wheel is not affected by floods or back-water.
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PARIS EXHIBITION, 1867.

VIENNA EXHIBITION, 1873.

LONDON EXHIBITION, 1874.

CORNWALL POLYTECHNIC SOCIETY, 1867 and 1873.

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THE "SPECIAL" DIRECT-ACTING STEAM PUMP.

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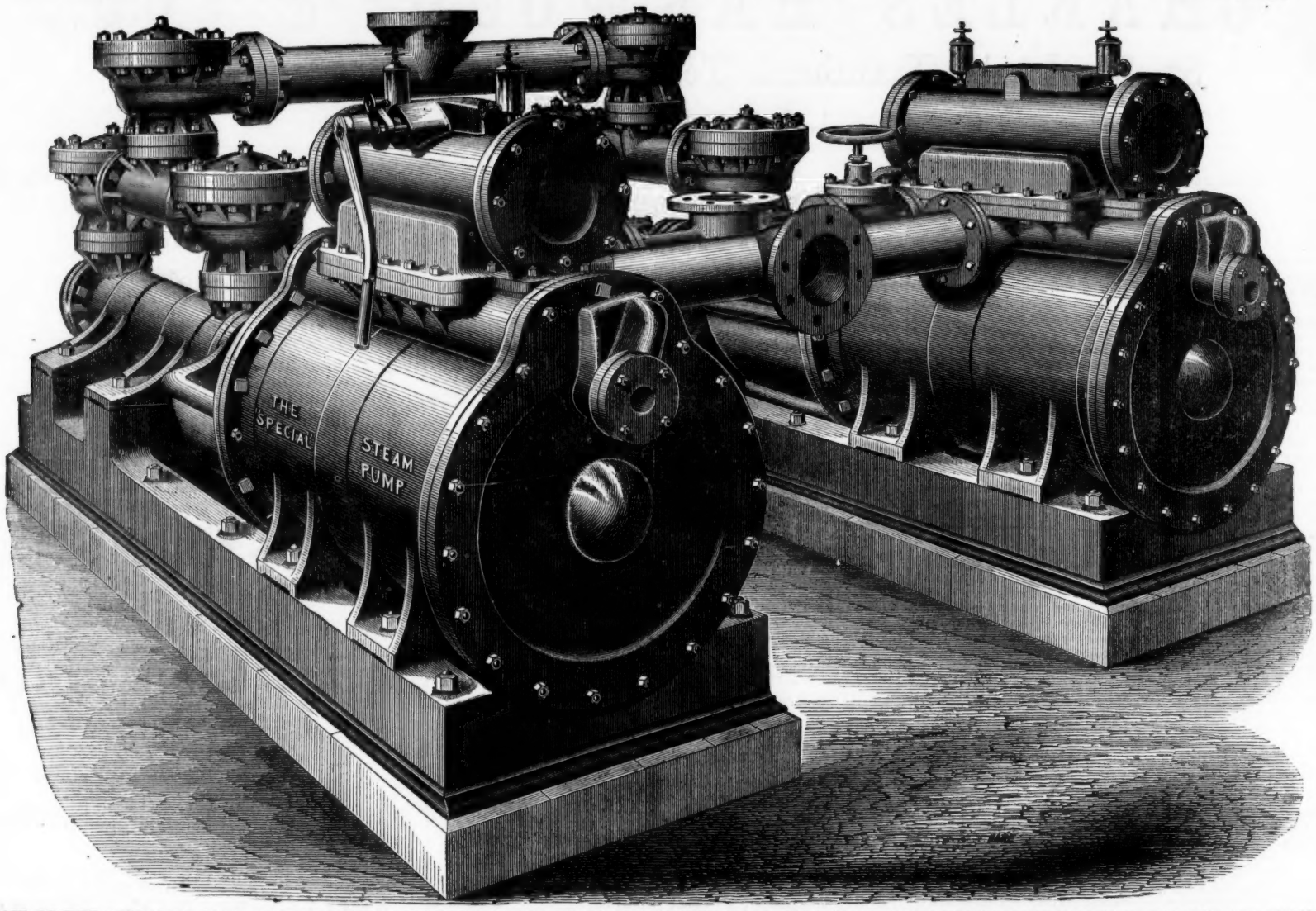
SUCCESSFULLY ADOPTED IN A LARGE NUMBER OF MINES IN THIS COUNTRY AND ABROAD.



PAIR OF THE "SPECIAL" DIRECT-ACTING STEAM PUMPS SUITABLE FOR HIGH LIFTS IN MINES, SIMILAR TO MANY SUPPLIED BY TANGYE BROTHERS AND HOLMAN.

The following extract from a letter, received by Tangye Brothers and Holman from J. Bigland, Esq., dated Feb. 25, 1875, refers to a "Special" Direct-acting Steam Pumping Engine supplied four years ago to Messrs. Joseph Pease and Partners, for the Adelaide Colliery, Bishop Auckland. The engine is throwing about 8000 gallons per hour, 1040 feet high, in one direct lift:—

"The underground pumping engine at Adelaide Colliery is working night and day. It does its work satisfactorily, and gives us very little trouble. Some of the cup leathers which form the plunger packing have worked three months. The working barrel is in beautiful condition. The average duration of the valve seats is about eight months; they work and keep tight as long as there is a bit of them left. I expect the valves (Holman's patent) and the buffers will last as long as the colliery."

Extract from a letter received by Tangye Brothers and Holman from W. H. Eagland, Esq., dated Feb. 27, 1875, in reference to a "Special" Direct-acting Steam Pumping Engine supplied two years ago to the West Yorkshire Iron and Coal Company near Leeds, to throw 16,000 gallons per hour, 465 feet high, in one direct lift:—

"It is at work night and day. Our man goes down to the pump twice a day (Ten A.M. and Four P.M.), to supply the tallow cups. After this it is left every day till he comes next morning, when he goes down again at Ten A.M. as before. The only repairs the pump has had for 12 months are one bucket, which had worked since we got the pump, and one valve seat, but no valve, so it has cost very little. Its first lift is 70 yards perpendicular, then the water passes up pipes for half a mile, ascending another 70 yards, and then another perpendicular pipe of 15 yards—total, 155 yards vertical height."

Extract from the Official Report of the Commission of the German Empire on the Vienna Exhibition of 1873, treating on Pumping Engines:—

"Contrary to these older pumping engines exhibited, there is now nearly everywhere the opinion established that the ('SPECIAL') pumping engines placed underground, which are made on A. S. Cameron's principle by Messrs. Tangye, are preferable to all. They do much duty combined with great compactness. They dispense entirely with the troublesome rod arrangement, giving often rise to stoppages, so that they will be applied shortly to a great extent, and are already in use in many localities. There is no doubt that this in every respect practical system will command a general adaptation."

200 SIZES AND COMBINATIONS OF THESE PUMPS ARE NOW MADE.

The following are a few of the Sizes for High Lifts in Mines:—

Diameter of Steam Cylinder .....In.	7	8	9	9	10	10	12	12	12	14	14	14	16	16	16	16	18	18	18	18	21	21	21
Ditto of Water Cylinder .....In.	3	3	3	4	3	4	3	4	5	4	5	6	4	5	6	7	5	6	7	8	5	6	7
Length of stroke .....In.	24	24	24	24	36	24	36	36	36	36	36	36	36	36	36	36	48	36	36	36	48	48	36
Gallons per hour approximate	1830	1830	1830	3250	1830	3250	1830	3250	5070	3250	5070	7330	3250	5070	7330	9750	5070	7330	9750	13,000	5070	7330	9750
Height in feet to which water can be raised with 40 lbs. pressure per sq. in. of steam or compressed air at pump	325	425	540	300	665	375	960	540	345	735	470	330	960	615	426	312	775	540	400	300	1058	740	540

CONTINUED.

Diameter of Steam Cylinder .....In.	21	21	21	24	24	24	24	24	26	26	26	26	26	30	30	30	30	30	32	32	32	32	32
Ditto of Water Cylinder .....In.	8	9	10	6	7	8	9	10	7	8	9	10	12	8	9	10	12	14	8	9	10	12	14
Length of stroke .....In.	36	36	36	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Gallons per hour approximate	13,000	16,519	20,000	7330	9750	13,000	16,519	20,000	9750	13,000	16,519	20,000	30,000	13,000	16,519	20,000	30,000	40,000	13,000	16,519	20,000	30,000	40,000
Height in feet to which water can be raised with 40 lbs. pressure per sq. in. of steam or compressed air at pump	413	326	264	960	700	540	427	345	827	633	500	405	282	840	665	540	375	275	960	758	625	426	313

PRICES OF ABOVE ON APPLICATION.—FOR SIZES AND PRICES OF PUMPS FOR LOWER LIFTS SEE SEPARATE LIST.

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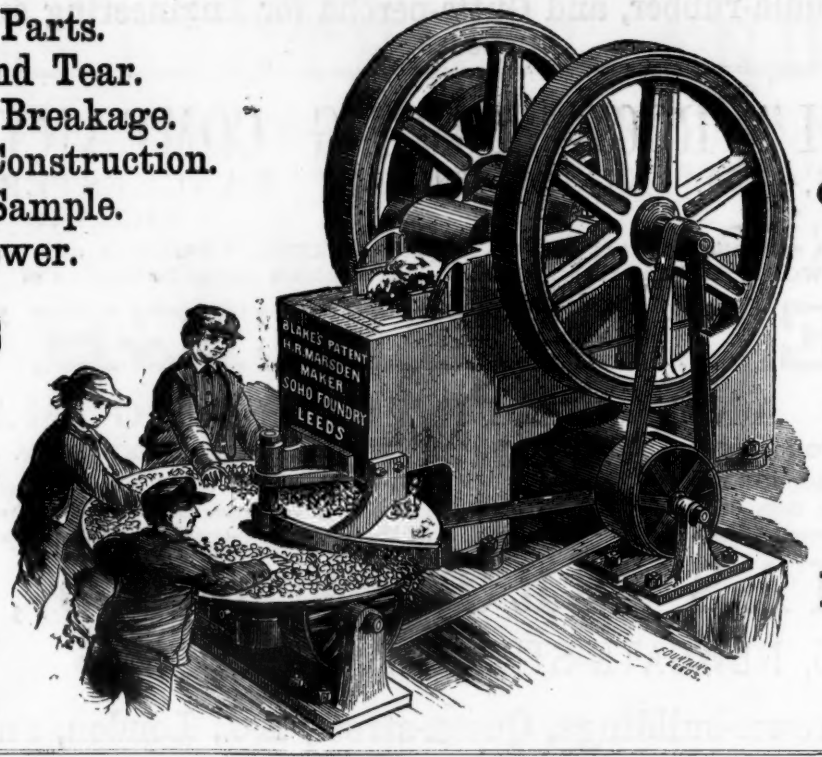

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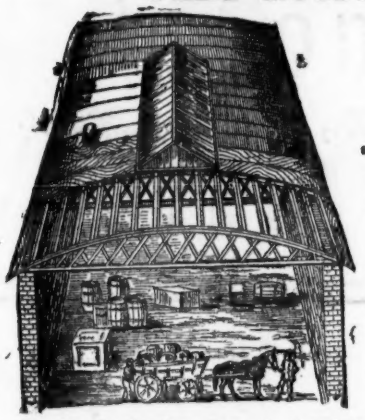

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